Master Car and Locomotive Painters' Association

PROCEEDINGS
FORTY-SEVENTH
ANNUAL CONVENTION
Atlantic City, N. J.
SEPTEMBER
1916

JOHN F. GEARHART

PRESIDENT

PROCEEDINGS

OF THE

Forty-Seventh Annual Convention

OF THE

Master Car and Locomotive Painters' Association

OF THE UNITED STATES AND CANADA

HELD AT

ATLANTIC CITY, N. J.

September 12

1916

CORRECTED AND APPROVED BY THE SECRETARY

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1916

Master Car and Locomotive Painters' Association of the United States and Canada

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(This Committee was continued, to report next Convention)

LIST OF CONVENTIONS

OF THE

Master Car and Locomotive Painters' Association

No. of Convention and where held	Date	President
1 Boston, Mass.	Nov. 6, 1870	Joseph Hill
2 New York, N. Y.	Sept. 6, 1871	Warner Bailey
3 Cincinnati, O.	Sept. 4, 1872	James C. Van Pelt
4 Chicago, Ill.	Oct. 8, 1873	George O. Winder
5 Buffalo, N. Y.	Sept. 2, 1874	M. W. Stines
6 New York, N. Y.	Sept. 8, 1875	M. W. Stines
7 Philadelphia, Pa.	Sept. 20, 1876	M. W. Stines
8 Albany, N. Y.	Sept. 19, 1877	S. E. Kirkpatrick
9 Cleveland, O.	Sept. 18, 1878	D. D. Robertson
10 Detroit, Mich.	Sept. 10, 1879	D. D. Robertson
11 St. Louis, Mo.	Sept. 15, 1880	D. D. Robertson
12 New York, N. Y.	Sept. 21, 1881	D. D. Robertson
13 Chicago, Ill.	Sept. 20, 1882	D. D. Robertson
14 Baltimore, Md.	Sept. 19, 1883	John Rattenbury
15 Boston, Mass.	Sept. 3, 1884	John Rattenbury
16 Toronto, Ont.	Sept. 2, 1885	F. S. Ball
17 Chicago, Ill.	Sept. 8, 1886	J. C. Stout
18 New York, N. Y.	Sept. 30, 1887	Samuel Brown
19 Cleveland, O.	Sept. 12, 1888	Samuel Brown
20 Chicago, Ill.	Sept. 11, 1889	A. E. Barker
21 Boston, Mass.	Sept. 10, 1890	Joseph J. Murphy
22 Washington, D. C.	Sept. 9, 1891	James A. Gohen
23 Detroit, Mich.	Sept. 14, 1892	W. O. Quest
24 Milwaukee, Wis.	Sept. 13, 1893	William J. Orr
25 Buffalo, N. Y.	Sept. 12, 1894	W. T. Leopold
26 Cincinnati, O.	Sept. 9, 1895	Charles E. Copp
27 New York, N. Y.	Sept. 9, 1896	Charles E. Copp
28 Old Pt. Comfort, Va.	Sept. 8, 1897	Charles E. Copp
29 St. Paul, Minn.	Sept. 13, 1898	Charles E. Copp
30 Philadelphia, Pa.	Sept. 12, 1899	H. G. McMasters
31 Detroit, Mich.	Sept. 11, 1900	D. A. Little
32 Buffalo, N. Y.	Sept. 10, 1901	A. J. Bruning
33 Boston, Mass.	Sept. 9, 1902	A. P. Dane
34 Chicago, Ill.	Sept. 8, 1903	W. C. Fitch
35 Atlantic City, N. J.	Sept. 13, 1904	C. A. Cook
36 Cleveland, O.	Sept. 12, 1905	J. F. Lanferseik
37 Washington, D. C.	Sept. 11, 1906	H. M. Butts
38 St. Paul, Minn.	Sept. 10, 1907	J. W. Houser
39 Atlantic City, N. J.	Sept. 8, 1908	B. E. Miller
40 Niagara Falls, N. Y.	Sept. 14, 1909	George Warlick
41 St. Louis, Mo.	Sept. 13, 1910	J. D. Wright
42 Atlantic City, N. J.	Sept. 12, 1911	J. H. Pitard
43 Denver, Col.	Sept. 10, 1912	J. T. McCracken
44 Ottawa, Ont.	Sept. 9, 1913	A. J. Bush
45 Nashville, Tenn.	Sept. 8, 1914	O. P. Wilkins
46 Detroit, Mich.	Sept. 14, 1915	T. J. Hutchinson
47 Atlantic City, N. J.	Sept. 12, 1916	H. Hengeveld

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Shannon, Chas., Lowe Bros. Co.	Pittsburg, Pa.
Sims, M. L., Sherwin & Williams Co.	Cleveland, O.
Sipe, James B., J. B. Sipe Co.	Pittsburg, Pa.
Swallow, S. H., Coe Manfg. Co.	Providence, R. I.
Smith, Oscar, Moller & Shumann	Brooklyn, N. Y.
Taylor, H. G., Ball Chemical Co.	Pittsburg, Pa.
Thayer, Robt. E., Ry. Age Gazette	Chicago, Ill.
Vail, D. B., J. B. Sipe Co.	Buffalo, N. Y.
Walbank, R. T., Glidden Varnish Co.	Chicago, Ill.
Wilson, J. W.	New York, N. Y.
Woodruff, C. L., Lowe Bros. Co.	Chicago, Ill.

HONORARY MEMBERS

Bartlett, Henry, Chief Mechanical Engineer, B. & M. Ry. Boston, Mass.
Bailey, Warner, Boston & Maine R. R. Concord, N. H.
Ball, Fred S., Retired, Penn. Ry. Lakewood, O.
Brady, James M., Retired, N. Y. C. Lines Oswego, N. Y.
Brazier, F. W., Supt. Rolling Stock N. Y. C. Lines, New York, N. Y.

Chamberlin, Eugene, Equipment Manager, Clearing House, N. Y. C. Lines, New York, N. Y.
Chamberlain, J. T., Retired, B. & M. R. R. Medford, Mass.

Enright, J. L., S. M. P., D. & R. G. R. R. Denver, Colo.

Gardner, Henry A., Director Institute Industrial Research Washington, D. C.
Garstang, Wm., Retired, C. C. C. & St. L. R. R. Indianapolis, Ind.
Gohen, James A., Cleanola Co. Indianapolis, Ind.

Hilpert, J. G., Retired, C. L. & W. Ry. Lorain, O.
Hoseley, Jacob, Retired, Penn. Lines Newark, N. J.
Lanferseik, John F., Retired, Penn. Lines Columbus, O.
Larue, Henry, M. C. B.-C. R. I. & Pac. R. R. Chicago, Ill.
Lentz, J. L., Ass't S. M. P., Lehigh Valley R. R. Bethlehem, Pa.
Lowe, Houston, Lowe Bros. Co. Dayton, O.

McDonnell, Dr. M. E., Ass't Chf. Chemist, Penn. R. R. Altoona, Pa.
Marden, J. W., Retired, B. & M. R. R. Waltham, Mass.

Quayle, Robert, S. M. P.-C. & N. W. R. R. Chicago, Ill.

Shroyer, C. A., Supt. Car Dept. C. & N. W. R. R. Chicago, Ill.
Strout, J. H., Retired, B. & O. R. R. Grafton, W. Va.
Smith, R. E., Gen. S. M. P.-Atlantic Coast Lines, Wilmington, N. C.

Thompson, W. O., Ass't S. R. S., N. Y. C. Lines, Buffalo, N. Y.
Tinker, J. H., M. M. C. & E. I. Ry. Danville, Ill.

Vogul, William, Retired, Mo. Pac. Ry. Chicago, Ill.

Proceedings of the Forty-Seventh Annual Convention of the International Association of Master Car and Locomotive Painters' Association

Held at Atlantic City, N. J., Beginning Tuesday, September 12, 1916

TUESDAY SESSION.

The Convention was called to order by the President at 10.30 A. M.

THE PRESIDENT: May we all stand and be led by Mrs. Little in singing two verses of "America."

(Convention stands. Verses sung.)

THE PRESIDENT: The Rev. Mr. Niles of Atlantic City will now invoke the Divine blessing upon us.

Prayer.

(Convention is seated.)

THE PRESIDENT: We find that the Mayor of Atlantic City is absent from the city, and we are to be welcomed here by Mr. Joseph C. Currier.

MR. CURRIER: As the President has told you the Mayor is out of the city, and in the absence of the City Clerk and the City Solicitor, I have been called upon, as a humble private citizen, but representing in this word of welcome the city in which you are meeting, to say what I know the Mayor would have been overjoyed to say, that we welcome you most heartily to this great resort by the sea. We are proud of our city, and believe we have many things that will interest and amuse you during the time you can take from your work in this Convention. I know that Atlantic City is not a stranger to you, and that you have on several occasions heretofore held your annual meetings here. We look upon it as a testimonial of the enjoyable and profitable times you have had here that you have returned to us in 1916, and we want you to have such a profitable and enjoyable time upon this occasion that you will soon again bend your steps toward us. I just want to repeat my welcoming words, and to close by saying that I deliver to you

now the key of the city, and to assure each and every member that the doors of the city are open in welcome. (Applause.)

THE PRESIDENT: Mr. Charles A. Cook, on behalf of the Association, will respond to Mr. Currier's words of welcome.

MR. COOK: Mr. President, Mr. Currier, Ladies and Gentlemen—Twelve years ago almost to the day it was my privilege as president of this association to respond to the welcome extended by the then Mayor of Atlantic City to its hospitalities. A very hearty welcome it was, and I am not presuming when I say that our association did your city credit on that occasion. It is that kind of an association. Again today we are the recipients of a most cordial welcome to your wonderful city by the sea. Of its beauties and attractions we are invited to partake. Atlantic City stands alone in its characteristics. It has no equal in all the world. It always has been and we believe it always will be the playground of the nations.

We accept, sir, in the same spirit in which it is given, your cordial welcome to your city, and assure you that when the time comes to depart, it will be with keen reluctance on our part and in the firm belief that we shall have so comported ourselves that we shall again be welcome to the city by the sea.

THE PRESIDENT: The next thing on the program is the President's Address, and with your permission I will read it at this time.

Ladies and Gentlemen and Members of the Master Car and Locomotive Painters:—

With almost the entire European continent still engaged in a terrible struggle, apparently determined to kill and destroy until exhausted, and when we consider that this glorious country of ours might also have been compelled to enter this horrible conflict, it is with thanksgiving to Almighty God for having permitted us to remain at peace, that I greet and welcome each of you on this, our Forty-Seventh Anniversary, in this beautiful city by the sea. A city of which any one who ever visited here before is so justly proud.

This is the fourth time that our Association holds its meetings here. First in the year 1904, second in 1908, third in 1911 and this our present in 1916. I do not believe the Committee will be criticised for selecting this place after it was discovered that the first place agreed upon, Wilmington, Del., was unable to take care of us.

In connection with this being our Forty-Seventh Anniversary, I wish to call your attention that we are fast approaching our Fiftieth or Golden Anniversary, and while it is yet too early to begin preparation to celebrate this event, it is not too early to take note of its approach and prepare our minds for it.

As this Association first saw the light of day in the city of Boston, November 6th, 1870, it would in my humble opinion be more than appropriate if our Golden Anniversary were celebrated in that beautiful and historical city. It would indeed be a fitting climax to a half century of useful endeavor, bringing this organization from its infancy to the large, powerful, influential and instructive association of today, back to the place of its birth on that occasion.

The hearty welcome which has been extended to us by the gentlemen representing this city makes us feel that during our stay, which is necessarily brief, we are among friends, with ample spare time to take advantage of the many opportunities this city offers for healthy recreation and enjoyment.

Our first consideration, however, should be to attend these meetings regularly, that is our principal business here, take part in the discussions and deliberations, and so be in position to convince your superior officers that it is to their interest to send you here.

In this connection I want to call your attention to the relationship which in my opinion should exist between the Master Painter and his superiors. It is often said that we are not given the same consideration that is extended to heads of other departments. Did it ever occur to you that whenever and wherever these conditions exist, it is yourself who is largely responsible. If your superiors have no confidence in your judgment, or if you permit suggestions to go unchallenged which your experience has taught you to be absolutely wrong, in other words, if you let the other fellow run your job, who is to blame if you are not given the same consideration so readily granted heads of other departments.

Let me suggest to you that the Master Painter who is a success in everything that the word implies, is he who makes his personality felt in all his business relations with his superior officers. These gentlemen are as a rule broad minded, and only too glad to acknowledge and recognize the ability of their department officers, and are usually willing to abide by their judgment in matters pertaining to their particular line. In these days when the demands made upon the railroads for increased compensation are of such a prevailing nature, the Master Painter has it in his power to render a great service to the company he represents. Practice the strictest economy in all departments under your supervision.

Insist upon your men performing their duties faithfully, watch the material proposition closely, insist on having the best the market affords at a reasonable price, watch the leaks and see that every pound or gallon is used for the purpose for which it is intended.

I am quite sure if you will do your duty along these lines you will be assisting and doing your part toward lessening the burdens which railroads are required to bear these days.

The many articles published in various periodicals and in our own case, our official organ, are often of great assistance to all of us. Did it ever occur to you that the man who reads, the man who utilizes at least a portion of his leisure hours in gathering valuable information, and tells about what he reads, and shares with others the information he has garnered, comes each time into more complete possession of the facts and information. It is a giving which does not impoverish, indeed it is enriching, most of all it is not selfish.

I am glad to report that the Committees which were appointed have done their work in such an admirable manner that it calls for special commendation, and the thanks of this Association are due them for their untiring efforts. Much of the success of any association is due to the way the committees perform their duties. The various subjects to be discussed during this Convention are of very important character, and I want to assure you a great deal is to be learned from the discussion of them. It opens up new fields of thought, heretofore not explored by a great many of us.

I trust that each of you will take advantage of this opportunity to enrich your minds, and become naturally more able to grasp the problems which confront the Master Painters of today.

Our financial condition I am glad to say is much improved, our indebtedness is entirely wiped out, the credit for this is due entirely to our very efficient Secretary, who has worked faithfully to bring this condition about. Our membership for the year shows an increase of thirteen members. When taken into consideration that during the year seventeen were dropped for non-payment of dues, lost four by death, and one resigned, I believe we can congratulate ourselves for the work done along that line the past year.

It is with sincere regret and sorrow that I have to announce the death of our late President, Mr. T. J. Hutchinson, which occurred on the morning of June 10th, 1916, in the city of London, Ont. It was my pleasure to become intimately acquainted with this gentleman and I am sure all of you will share my sentiments when I state that this Association has met with a distinct loss in the death of this able man. In addition we have lost by death, J. J. Toomey, associate member, who died December 27th, 1915, Mr. Thornton Hopkins, who died July 31st, 1916, and Mr. T. J. Rodabauch, honoray member, who died March, 1916.

Suitable resolutions will be drawn and presented to this body at the proper time paying tribute to their memories.

You will note that during this address I have refrained from making any recommendations or suggestions, in reference to changes in our laws, which are usually embodied in the presiding officers' address. This matter is thoroughly covered by the Committee on Revision of By-Laws, appointed last year and their interesting report will be submitted to this Association at the proper time during this session.

I would indeed be lacking courtesy did I close without mentioning the ladies, mothers, daughters and wives. God bless them all for their presence here this morning, to encourage us on our work, to share with us the many good things which no doubt the entertainment committee has provided and if necessary keep us in the narrow path spoken of in the Good Book.

In conclusion I want to thank the various committees for their assistance during the past year. To the Secretary and others who in any way assisted to make this year successful, finally for the honor confered on me as your Pesiding Officer, words fail to express my sincere appreciation, and my earnest wish is that this Association may grow and flourish and become a power of good, recognized by all for what it really is—One of the most progressive associations among the many Railway Organizations.

(Applause.)

THE PRESIDENT: We shall now begin our regular order of business. I understand that numerous affairs and amusements have been planned for the ladies, and wish to say that at this time, although we should be glad to have them remain with us, if they desire they may retire.

(Ladies leave hall.)

THE PRESIDENT: The next on the program is the report of your Secretary-Treasurer, Mr. Dane.

SECRETARY'S TREASURER'S REPORT.

To the Officers and Members of the Master Car and Locomotive Painters' Association of the United States and Canada.

Gentlemen:

I have the honor to present for your consideration and approval, the following report of your Secretary-Treasurer for the year ending August 31st, 1916.

Unfortunately, we were unable to meet in Wilmington, Del., this year, owing to an unusual increase of hotel business in that city, making it impossible to contract for sufficient and suitable accommodations for the attendants.

We were fortunate, however, in securing for our headquarters this beautful hotel, with its grand and extensive

additions which have been erected since our last visit to this acme of seaside resorts.

The Advisory Committee which met at Pittsburg, Pa., Feb. 22nd, was represented with full ranks, Mr. E. L. Younger of Little Rock, Ark., in the chair, together with a goodly number of members and associates, a detailed report of which will probably be presented by the Chairman.

A splendid list of subjects, essays and queries were formulated for a program, of which 500 copies were distributed July 1st. This amount proved insufficient to supply all wants and requests, and will be increased hereafter.

Three hundred and fifty cloth bound volumes and 50 paper cover, making in all 400, were mailed to all members, Railway Officials (when requested), R. R. Commissioners, Public Libraries, and to those who are particularly interested in the efforts of this Association.

For the past few years I have thought some arrangement might be made whereby an increase of funds could be made available without depending entirely upon receipt of dues to defray the running expenses of the Association, and along these lines I suggested to the Advisory Committee at Wilmington in 1914, that we add to our annual program sheet several pages for advertisements, the revenue from which would pay a greater part of our expenses and would enable us to lower the annual dues.

This suggestion, however, was objected to by some of the committee and the matter was dropped.

We closed our books last year with a membership of 292. We mourn the death of four members, Messrs. Toomy of the Ball Chemical Co., Hopkins of the Beckwith & Chandler Co., and our very dear friend, Ex-President Hutchinson, retired, also Bro. Rodabaugh, retired. We have been obliged to drop for non-payment of dues 17, with 1 resignation, leaving 270. We have added during the year 26 active, and 9 associates, making a total of 305, a gain of 13.

As your Treasurer this year I was determined, if it was possible, if a balance should exist, it should appear on the desired side of the ledger, and I am pleased to report the following list of receipts and expenditures which happily show a slight balance of cash in the Treasury.

This has been accomplished by rather too strict economy in expenditures and a constant fusillade of letters, exhortations, which almost reached the "saw-dust trails" and which I hope will be the last attempt necessary to obtain payments of dues, and after all these efforts there still remain a list of 21 members who have not yet paid their 1916 dues, which were payable in advance or at the Detroit Convention.

RECEIPTS.

Membership Fees	$168.00
Annual Dues	1071.00
Sale of Bound Vols.	12.00
Total	$1251.00

EXPENDITURES.

Stenographer	$75.00
Test Committee Exp.	2.00
Bal. on 1915 Printing	100.00
Exp. on Flags & Banner	.65
400 Bound Vols.	283.80
U. S. Postage	39.00
Stationery and Printing	13.82
Bal. Due Treasurer	329.53
Secretary's Salary	400.00
To Cash in Treasury	7.20
Total	$1251.00

(Applause.)

MR. BECKER: I move that the report of the Secretary-Treasurer be accepted.

(Seconded by Mr. Wilkins, and carried.)

THE PRESIDENT: We will next have the report of the Advisory Committee Mr. Younger, Chairman.

To the President and Members of the Association:—

The Advisory Committee appointed by the President at the 46th Annual Convention in Detroit, Michigan, held its meeting at the Fort Pitt Hotel in Pittsburg, Pa., on Tuesday, Feb. 22, 1916. All the members of the Committee, which consisted of J. D. Wright, George Warlick, B. Heffleffinger, O. P. Wilkins and E. L. Younger, were in attendance at this meeting, and in addition thereto we had with us several members of the Association whose aid and counsel was sought in arranging the program for the 1916 Convention.

After the Committee had given careful consideration of the many good subjects submitted to it, a selection of the subjects, essays and queries which now form a part of the program for this Convention was made. A number of excellent subjects were submitted to the Committee which we found with great reluctance that we would be unable to use, and these subjects were left in the hands of our Secretary for consideration by the Advisory Committee in 1917.

Mr. C. A. Cook of the Hotel Committee, who was also Chairman of the Advisory Committee for 1915, in his report to the Association placed special emphasis upon the responsibilities of the members of our Association. Among

other things, he said: "Where members have been assigned the preparation of different papers, it is their duty to this Association to give cheerfully their time, best thought and best efforts in preparation of the subjects selected for them, unless they have been excused beforehand upon a reasonable request."

This statement strikes me as being so worthy of attention that we ask permission to incorporate it in our report for 1916. Our Association is a system of parts so correlated as to form a broad and comprehensive whole, and the success of the larger order is based on the faith, allegiance and activity of the smaller units. The member, therefore, who is interested in the growth and welfare of the Association can best work toward that end by performing the tasks assigned to him to the best of his ability, thus relieving those who have borne a large share of work and responsibility.

Respectfully,

O. P. WILKINS,
J. D. WRIGHT,
GEO. WARLICK,
B. HEFFLEFINGER,
E. L. YOUNGER, Chairman.

(Applause).

MR. PHILLIPS: I move the report be accepted.

(Seconded by Mr. Butts, and carried.)

THE PRESIDENT: The next will be the report of the Committee on Tests, Mr. Gibbons, Chairman.

Mr. President and Gentlemen of the M. C. & L. P. A.:

Your Committee on Tests respectfully call the attention of the members of this Association to an article by Mr. H. H. King, Associate Professor of Chemistry of the Kansas State Agricultural College, published in the Topeka Daily Capital, January 24th, 1916, wherein he states as follows:

"That lack of paint protection causes a greater annual loss through deterioration than the aggregate Kansas fire loss for 12 months."

He also says:—"That people generally paint because of the ornamental effect, little realizing that they are preventing a heavy loss through deterioration by so doing."

If his statement is true in regard to loss by deterioration due to lack of paint on the property of the people of a great progressive state like Kansas, your Committee believes that they are justified in stating that there is a greater loss on Railroad property through deterioration due to lack of paint protection than from all other sources combined. It is evident from the numerous articles appearing in the railway journals and magazines that the officials in charge of the maintenance of the railroad property are coming to a realization of this fact and are studying the question more closely than ever before.

We pride ourselves upon the fact that this Association is entitled to a great deal of credit for this awakening and we should continue to lead in the work of securing adequate paint protection for the property under our charge. Each of us at times have realized that the paint we applied had very little value in the protective sense and only gave a temporary ornamental effect and the conditions under which we were compelled to apply the paint were such that very little protection could be expected from it. We believe our duty as individuals and as an Association is, to clearly point out the road that must be followed, if we are to obtain the protection desired in the highest degree possible.

With this idea in mind this Committee last year proved by a number of tests that heat treated Linseed Oil made the best paint vehicle for the protection of iron and steel. We also gave quotations from a number of recognized authorities on paint to substantiate our claims. To further substantiate the proof submitted, we have secured some paints made with the same pigments, but the vehicle in one set was raw Linseed Oil and in the other Heat Treated Linseed Oil. These paints were applied on sandblasted steel plates and when dry, plates were fastened on the roof of a passenger car.

Plate "A" was painted with leaded zinc and lamp black mixed with Heat Treated Linseed Oil.

Plate "B," the same pigment mixed with raw linseed oil.

Plate "D," composition paint, Red Lead base in Heat Treated oil.

Plate "E," same pigment, mixed in raw Linseed Oil.

Plate "G," the pigment is a carbon mixed with Heat Treated Oil.

Plate "C," the same pigment mixed with raw linseed oil.

The plates on which the paint mixed with raw linseed oil was applied are badly corroded. The others are in fair condition. A number of the plates were painted with different compositions of red lead and inert materials mixed with the different oils, but we did not have sufficient exposure to secure definite results, but film tests made of these materials indicate that comparatively the same results may be anticipated.

These films were allowed to dry for ten months, then submerged in water for 60 days, taken out and allowed to dry for one week, then submerged for 30 days.

Films "A" and "B" were painted with the same material as plates "A" and "B." Film "B" is covered with water blisters, plate "A" is comparatively firm and almost free from blisters. Film "D" is composed of red lead and silicates of magnesia, mixed in heat treated oil. It is smooth and firm.

Film "E" is the same pigment mixed in raw linseed oil and is badly blistered.

Film 2 is composed of red lead and silica mixed in heat treated linseed oil. Film is firm and smooth.

Film "J" is composed of the same pigment in aged raw linseed oil. It is rough and blistered.

There are several other films in this exhibit which contain heat treated linseed oil. They were all subjected to the same treatment as the others and they are all free from blisters. Your Committee believes the results conclusive.

All authorities that have studied the question agree that sulphur fumes and acids from the wash and burning of coal constitute the greatest menace to the proper protection of railroad equipment. Therefore, your committee have run tests to ascertain what composition of paint materials offers the greatest resistance to sulphuric acid. The plates used in this test were each given three coats of paint and when thoroughly dried a 40, 50, 60 and 70 per cent solution of sulphuric acid was dropped on the paint.

Plate No. 1, was painted with red lead mixed in heat treated linseed oil. In 24 hours the film was discolored but was firm and free from blisters. (This discoloration was found in all the red leads used and might indicate the presence of an organic dye.) This film blistered under the 70 per cent acid in 105 hours, under the 60 per cent. in 140 hours, under the 40 and 50 per cent it stood 165 hours before showing blisters.

No. 2, composition paint, red lead base in a chemically treated linseed oil, at end of test 192 hours, it showed a few small blisters under the 70 per cent solution of acid. Other solutions changed the color of films only.

No. 3, basis lead chromate in heat treated linseed oil, at end of test shows one blister under 70 per cent solution, under the others it changed color of pigment slightly.

No. 4, leaded zinc and carbon mixed in raw lifnseed oil, blistered under 70 per cent acid in 96 hours, under 60 per cent in 120 hours, at end of test shows small blisters under the 40 and 50 per cent solution.

No. 5, same pigment as No. 4, mixed in heat treated oil. Blistered under 70 per cent solution in 140 hours. At end of test, small blisters under 60 per cent and none at all under the 40 and 50 per cent solution.

No. 6, carbon mixed in heat treated oil, run.—To end of test, film is in good condition.

No. 7, mixture of carbon and small amount of red lead in heat treated oil, small blisters under 70 per cent acid at end of test, under other solutions film is in good condition.

No. 8, carbon paint mixed with heat treated and blown oil reduced with naphtha. At end of test small blisters under 70 per cent acid. Film in good condition under other solutions.

No. 9, carbon mixed with chemically treated linseed oil, advertised as acid resisting paint. Small blisters under 60 and 70 per cent solutions in 48 hours. Badly blistered in 72 hours and film destroyed under all solutions by end of test.

No. 10, China Wood and linseed oil, heat treated, no pigment, blistered under 60 and 70 per cent solution in 160 hours, no further change noted at end of test.

No. 11, same vehicle, gas black and calcium carbonate, pigments blistered badly in 24 hours, film destroyed in 72 hours.

No. 12, heat treated linseed oil and asphalt. Film in good condition at end of test, only effect apparent under any solution was a slight depression where acid was placed on film, as though it had become thinner at those points. This paint does not soften up under lubricating oil or heat, as so many asphalt paints do.

No. 13, carbon in raw linseed oil, blistered slightly under 70 per cent solution in 48 hours, film destroyed in 96 hours.

No. 14, mineral oxide, heat treated and blown oil, thinned with naphtha. Badly blistered in 48 hours, film destroyed in 72 hours.

No. 15, red lead in raw linseed oil, blistered in 24 hours. Film destroyed under all solutions in 72 hours.

No. 16, red lead in heat treated oil, small blisters wherever acid came in contact with film in 160 hours.

No. 17, graphitic carbon and lamp black, heat treated oil stood under all acids until end of tests, film in good condition.

No. 18, carbon and red lead in linseed oil. Stood test to end. Film in good condition.

This completes what might be termed a series of tests conducted by this Committee to determine the relative merits of paint materials for the protection of steel, and we believe we have conclusively proven that a heat treated linseed oil is superior to raw or chemically treated linseed oil. 2nd—Considering service condition, and price, a composition paint with red lead base is the best paint for priming or under coating, although they are more or less susceptible to the action of acids. 3rd—Carbon paints when applied direct to the metal, permits corrosion to form rapidly, but when properly selected and mixed with heat treated linseed oil, makes an ideal finishing coat for certain classes of railway equipment, on account of its acid resisting qualities.

When we consider that in these tests we used Dilute Sulphuric acids ranging from 40 to 70 per cent acid, and that in actual service the deposits of acids rarely, if ever, exceed a 10 per cent solution, we can positively state that a combination of primers and overcoats such as those outlined above, if properly applied, will not only give us a practical acid resisting paint, but will also give the maximum

amount of protection from corrosion, possible to secure by paint, but it should be thoroughly understood that in order to get the best service from paint, it should have an opportunity to thoroughly dry before being put into service.

We have duplicates of the plates used in the acid test and for the edification of those present, will repeat this test before the Association.

ELECTROLYSIS—ITS EFFECT.

To demonstrate the effect of Electrolysis on steel we present a series of photographs showing the interior of treated water storage tank of the A. T. & S. F. Ry., at Topeka, Kansas, and quote the following from the report of the chief electrician as to tests made to ascertain if there was electrical action in these tanks.

"We have conducted a number of tests and find there is a current generated within the tanks, it being particularly noticeable in the treating tank. The temperature of the water entering the treating tank has a great deal to do with the amount of current flowing, that is, the hotter the water the greater the flow of current. At the treating tank the heating element within the tank forms the positive pole of the battery and the shell the negative. The same polarity exists in the storage tanks at the same location. The effect of electrolysis in these tanks is to eat away the sheets forming the shell of the tanks. At the roundhouse there is about the same amount of current generated in the tank, but it is flowing in the opposite direction from that in the other tanks, the result being there that the rods which are used for operating valves within the tank corrode rapidly, but the sheets do not."

Photographs No. 1, No. 2 and No. 3 show different views of the interior of storage tank at roundhouse. The interior of this tank was never painted and tank is now 14 years old and in good condition, being well protected by deposit settled out of the treated water in the form of a lime scale. The rods spoken of above by the chief electrician had been renewed a short time before photographs were taken.

Photographs No. 4, No. 5, No. 6, No. 7 and No. 8, are different views of the storage tanks at pumping station. No. 9 is a view of treating tank. Neither of these tanks was painted on the interior. The black magnetic oxide present on the sheets of these tanks were the first indications that electrolysis was present.

Under the supervision of Mr. W. A. Powers, chemist of the Santa Fe system, we have conducted tests of a number of paints, some of which had been highly recommended as having insulating properties. The accelerated test was made by filling a dish, that had previously received three coats of paint, with water treated in the same manner

as the water in the storage tanks and then attaching a galvanic battery, the negative pole being the dish, the positive was run into the water. Only one paint has stood up under this test for over two weeks. This was a mixture of a specially prepared paint to which was added a certain portion of Portland cement. This paint has been under the test for weeks and shows no break or change on the surface and shows no results of electrical action. This test will be continued until we have obtained definite results and if anyone has information as to a paint that will stand this test, I am sure that Mr. Powers would join the Chairman in extending thanks for any information given.

Respectfully submitted,

J. W. GIBBONS,

S. E. BREESE,

E. T. CONGDON, Committee.

(Applause.)

GALVANIZED IRON PANELS EXPOSED FOR WEATHER TEST, DECEMBER, 1914.

Panel No. 1—Primed with outside body nnishing varnish.

Panel No. 2—Special primer.

Panel No. 3—Primed with red lead and lampblack.

Panel No. 4—Panel cleaned with muriatic acid and then painted with a standard roof paint.

Panel No. 5—Panel cleaned with sal soda solution and painted with a standard roof paint.

Panel No. 6—Special primer.

Panel No. 7—Primed with red lead.

Note: All panels painted with three coats of a standard roof paint.

Remarks: All panels appear to be in about the same condition of wear, with the exception of No. 1 and No. 3. These latter show considerable evidence of wear and deterioration.

Above panels are at the disposal of those desiring to examine them, and information concerning the manufacturers of the materials used in the test may be obtained from the member of the Committee making the test.

PANELS EXPOSED FOR WEATHER TEST DECEMBER, 1914.

Panel No. 1—Special surfacer.

Panel No. 2—Special surfacer.

Panel No. 3—Special surfacer.

Panel No. 4—Red lead and lampblack.

Panel No. 5—Shop made surfacer.

Panel No. 6—Primed with finishing varnish and then coated up with shop made surfacer.

Note: Panel No. 2 was putty glazed. Panel No. 5 was putty glazed.

Explanation: All of the above panels were finished with two coats of a single make of outside body finishing varnish.

Names of the manufacturers of the materials employed in this test may be obtained upon application to the member of the Committee having it in charge.

Panels are available for examination by members of the Association and others in attendance at the Convention.

MR. GIBBONS: We are conducting a set of these tests here. The acid was dropped on the plates just before the opening of the Convention.

MR. WILKINS: That is one of the most remarkable reports ever presented to this Association, and I move that we place it on file, that it be published in our records, and that we extend to the Committee on Tests a rising vote of thanks.

(Seconded by Mr. Keil, and unanimously carried.)

MR. PITARD: The Chairman spoke of using red lead in his experiments. In the last year or two red lead has made its appearance in another form, a paste form, ground in oil the same as white lead. It has not the hard drying qualities which the old style red lead had, and that is very important. It is held by some that the new style of red lead does not afford the protection to steel that the old style red lead did, which is sold only in dry form. I wanted to ask which kind of red lead was used in these experiments.

MR. GIBBONS: We have used in the last three years a red pead purchased in the dry form that has a high percentage of litharge in it. Our tests, however, were not directed to finding out which one of those two leads was the best. In our tests we have used the red lead that stays in suspension and the red lead that has a high percentage of litharge in it, and it has developed very little difference in them. A number of people have written on that subject, and they make the point that litharge is the drying quality in the red lead that binds it together and holds it more firmly. As I stated a year ago, I believe the vehicle is the main part of the paint, and if you have the proper vehicle and pigments of such composition that they will amalgamate and meet the requirements of the thing you wish to protect, or resist the elements to which they are exposed, that is the best. In all my reports I have said a composition red lead base paint. That means a red lead base with inert materials. Some put magnesia in them, and they claim that the asbestos has a tendency to keep the red lead in suspension. And there is a certain percentage of silica used, and I believe that a composition of red lead, magnesia and silica is one of the very best we have tested. I haven't given the pro-

portions except in one or two cases in the last two or three tests of these various pigments. From the tests I have made I believe the pigment is the necessary thing for the paint to obtain to give you good protection.

MR. WILKINS: I agree with everything Mr. Gibbons has said with reference to the red lead. All those red leads that are ground up, and what are known as pure red lead, do not contain a very large percentage of litharge. We have had considerable experience with the so-called pure red leads, and we have come to the conclusion that a red lead that contains anywhere from ten to fifteen per cent of litharge, or what is known as the painters' old commercial red lead, will certainly give the best results in the priming of steel cars. The litharge is the drying agent in the red lead. I have found that red lead without litharge is very slow drying. Two or three years ago we purchased quite a lot of what is known as the pure red lead; it ran around 97 or 98 per cent, and before we could use that red lead we had to buy litharge to mix with it. You understand when you mix the litharge in with the red lead mechanically, it is just one piece of litharge lying up against a piece of red lead, and it does not have any drying qualities; whereas, if contained in there originally, every molecule of red lead contains a certain percentage of litharge, and it has a tendency to dry the paint and make a hard dry film. Mr. Gibbons laid stress on the vehicle, but I believe it is about equally divided between pigment and vehicle. We can put a pigment in there that will destroy the lasting qualities of the pigment. I believe we should adhere to the red lead that contains a certain percentage of litharge.

MR. BECKER: Here is an old formula of forty years ago: Red lead and litharge. There is nothing new about it at all. If you give it plenty of time you will get results, but the way some of them rush now, nothing will give proper results.

MR. BURNS: What kind of brushes were used in the tests? Was the test made just as though you were painting ordinary structures, or was something used in the way of special brush? While I agree with Mr. Gibbons that the vehicle is very important, still the application of the paint is the most important thing of all.

MR. GIBBONS: We aimed to get comparative results. All the paints were treated in the same way, applied with the same kind of a brush and the same man applied them, and they were applied on the same kind of iron, sand-blasted. So the results are comparative. If you would go out on a rough bridge or underframe of a car, and have a big heavy six inch brush, you probably would not have very good results, because it would not be brushed out so well. Mr. Burns is correct when he says there is a great deal in application. Mr. Wilkins brought out one advantage of the litharge, and that is its drying qualities, and you will note we

said that to get good service from paint, it must be thoroughly dried, and litharge to that extent is one of the best things that can be obtained in red lead, and he is undoubtedly right that the litharge in the red lead itself, and not being mixed by machine or hand, but naturally in it because it has not been calcomined out of it, is the best way to have the litharge in the paint.

MR. HAYNES: Has the Test Committee tried this on a rough rusty plate, such as you get on bridge or construction work of any kind around a mill? If you tried that without sandblasting, to what degree was your oil heated?

MR. GIBBONS: The treated oils we used in all tests were explained last year. That report will give you the different temperatures, and went into that matter in detail. The Committee has not applied any on rusty iron, because they did not think it would be a fair test in a comparative test between paints, because one plate might be more corroded than another, although you might not be able to see any differenc with the eye, and therefore our tests were always made on plates as near alike as they could be made.

MR. BYERS: There is a difference in painting a sheet of iron after treating it with sandblast, and a steel car. With a steel car it is impossible to clean all parts thoroughly. Some of it is rusty, and no matter what you put there it won't stay on. We are using the red lead based with carbon black, but I think the worst trouble we have is in not getting our cars properly cleaned before we paint them.

MR. GIBBONS: We emphasize in this report that each of us has applied paint when he believed it gave very little protection, but the conditions were such that he couldn't avoid it. We must so educate our superior officers that they will give due protection to the property under their charge. (Applause.)

MR. GEARHART: We are going to make for the Society of Testing Engineers a test of this same nature, and we have assembled the steel panels. One we sandblast, another we paint over the rust, and the same way with scale. Some of those people think you don't need to sandblast, and some think you don't need to take the rust off. One firm of tank builders let their tanks rust before they paint them, they let them stand a couple of months and let them rust, and then paint them, and they think they get better results than with a sandblast. In a year or two we may know more about that.

MR. McLAUGHLIN: Years ago, before we thougnt of the sandblast, it was our idea to let the tanks weather-rust, but then we cleaned them up. They always had to have the foundations fairly clean before it was safe to prime or build up a surface, and we got good results in doing that. I would like to see the results of Mr. Gearhart's test. My contention has been that it is necessary to have as clean and

perfect a foundation as possible before you prime your work; I think every particle of the rust should be taken off before the priming is put on steel. We get better results with the sandblast than we did by the old method.

MR. GEARHART: 2x3½ foot plates have been taken off of old steel freight cars. Some of the members of the Society of Testing Engineers contend the rust should not be taken off. I am not making any claim like that. When they asked me to go into it, I said I didn't believe we could find a foreman painter who would advocate their theory.

MR. McLAUGHLIN: If you will look at some of the underframes of your steel cars and some of your steel tanks, you will find where we have not been particular in taking the rust off, that it always blisters there, and it will eventually fold up and leave a scale.

MR. YOUNGER: I will watch that test with much interest. I believe in removing all sorts of scale and rust from metal of all sorts. Mr. Byers and I in the old days worked in the same shop, and with tin roofs our foreman insisted on getting a coat of rust before painting. We used an ordinary coat of paint and oil, and as I remember it, those roofs used to hang pretty well, did they not, Mr. Byers.

MR. BYERS: Yes, sir.

MR. GEARHART: Maybe it was a different tin than now.

MR. FRYE: Speaking of rust, my experience has been that just as long as you leave a particle of rust, it will come again, and will gradually increase and increase, and will raise a scale that will shove the paint entirely off. I believe you must get the rust off.

MR. BUTTS: At the last convention I called attention to the different results obtained on steel roofs of passenger coaches that received exactly the same treatment. The whole roof was thoroughly sandblasted, and painted with an ordinary mineral brown with pure linseed oil, and some of the sections were very badly corroded at the end of three or four months, and at the end of the year holes were eaten nearly halfway through the sheets. Others were not so affected, and this would seem to prove that there is a vast difference in the quality of the steel. Some may not corrode, while others will corrode under exactly the same treatment. I presume you have all noticed that ordinary iron will scarcely ever corrode when properly painted, but the steel that is used nowadays will corrode badly, some worse than others. Here is a field for the chemist to enlighten us as to the composition of the steel used in the construction of passenger cars, to find out what is in the composition that corrodes.

MR. MILLER: We have had practically the same experience, and I have been telling our people that that is not a proposition for the painter, but for the chemist to solve; that the greatest trouble we were having with rusty steel car

roofs was due to the peculiar composition of the steel, which is of very soft nature in order that it may be worked. I believe that is at the bottom of it all.

MR. J. C. SMITH: As to the difference in steels, we had a roof which was thoroughly sandblasted, and which went out for seven or eight months. The steel was all painted alike, but some of the sheets rusted and some did not.

MR. THEODORE HINBURG: We have about 120 steel cars to take care of, and we had four or five library cars that stayed out on the Pacific Coast without attention for a number of years, and they were badly rusted, while the others are in good condition. We paint them every two or three months, and have no trouble from rust.

MR. BURNS: The composition of the steel of course makes a difference. We should be able to determine from the nature of the surface the number of coats it should receive to protect it. For instance, if we have a plate and two or three coats do not protect it in the first instance, it is self-evident that steel requires more coats to protect it. So we should study the different parts of the metal structure to determine how much additional paint is required on this particular kind of steel which corrodes more rapidly than the other. I have had some experience in painting boats, and we come across this thing all the time. For instance, the frame of a vessel goes more rapidly than the hull plates, and we put several extra coats on the frames. If we could determine from the condition of the metal how many additional coats would be required to protect it for a certain time, we could reach the result we want.

MR. KEIL: I am opposed to letting a sheet of steel rust, and than afterwards taking care of it. I had some experience some years ago with steel that was left out in the open and allowed to rust. Afterwards when that steel was used in building tenders, we found that steel that had been permitted to rust outside gave us much more trouble than that steel which had been well housed. In cleaning tenders years ago we used chemicals, and whenever we came to the original steel we found the manufacturer's brand as clean and nice as could be, no rust whatever. That proves it was taken care of before it was allowed to rust. I belong to the St. Louis Railway Club, and about seven years ago the master mechanics and master car builders asked me whether it paid to sandblast. Now I have had a sandblast ever since I have been in the business, and this is my thirty-first year, and I advocate taking good care of the steel, and I have advocated to our master mechanics and superintendents of motive power to house the steel carefully; and if you send a foreman painter to take charge of the work at the manufacturer's, where they are building, have him see that everything is removed before he allows them to paint it.

THE PRESIDENT: We will next have report of Committee on Revision of By-Laws, Mr. Copp, Chairman.

REPORT OF COMMITTEE ON REVISION OF BY-LAWS

Mr. President:

Your Committee on Revision of By-Laws have attended to their duty and beg leave to submit the following report for action of the body at the 1916 Convention:

We have given due consideration to the recommended changes by your esteemed and lamented predecessor in office and concur in some and non-concur in others.

Art. II. We recommend the insertion of the words: "To promote the interest of the railway companies represented" in Art. II., so that the paragraph shall read: "The objects of this Association are to promote the interests of the railway companies represented and for the mutual improvement of its members." Balance of Art. II. to remain unchanged.

Art. III. Your predecessor recommends the abolition of the Office of Second Vice-President. In this we do not concur. Your chairman in conversation with Mr. Bailey since the last Convention, who is the sole survivor of the two men who started the Association, if indeed he is not the only one living of the first sixteen Master Car Painters who met and organized it, found that he was decidedly opposed to this change and said that he would sooner add another Vice-President, making three. In this your Chairman concurs and believes he will have the concurrence of the other members of the Committee. The New England Association of Railroad Veterans has six vice-presidents, numbered from first to sixth, so that in case of absences there is assurance that its meetings will be provided with a presiding officer. Moreover, it is a good method to set up representative men for candidacy in this way for promotion, if they are found worthy. In case of our Association men have been elected as second Vice-President who have been for good reasons dropped before they attained to the office of President. Then, again, a man, however good in other respects, when elected as Second Vice-President, enters the parliamentary school, so to speak, and becomes especially interested to watch the proceedings and make himself what he ought to be when he shall have the reins of the President's office placed in his hands. He also has a good chance to study the Association's needs and weak points and be ready to recommend remedies for them.

We believe the election annually of a President and Vice-President would increase the political scramble for office instead of diminishing it, and work to the detriment of the Association. Undoubtedly your predecessor regarded the election of members to office as slow by our present method of centering our efforts upon one man who is elevated to the office of Second Vice-President each year and promoted to First Vice and then to President, but your Com-

mittee are of the opinion that it is better to go slow and sure in this regard, and cite the past history of our Association as proof of the wisdom of the present law and practice on the subject. We recommend that new and young men of promise in our membership have recognition, and that their ability be tested in committee positions and that they be advanced to official capacity as fast as practicable. There have been men among us whose ability has been of signal character—born leaders—and recognized at once and they have been speedily advanced. But merit should govern all appointments and elections, especially men who are safe from the drink habit, if we would maintain a position of respectability and honor as an Association. We see no need of any changes in our by-laws on the score of the election and duties of officers. If the office of Second Vice-President is not abolished then the proposed renumbering of the articles in our by-laws will not have to be done. They will remain as they are, with the exception of some sections thereof, as Art. VII., "Duties of Second Vice-President," will stand.

Art. IX. We do not recommend the merging of the Test and Information Committees into one committee as proposed. We have membership enough of ability to cover both and there is work for all, if they will interest themselves and do it. And we ask that they be given work to do, if any is lacking. We see no need of restricting membership to two successive terms in either committee In Sec. 2, under "Duties of Committees," regarding the meeting of the Advisory Committee, the words: "and their legitimate expenses shall be paid by the Association" are to be stricken out in accordance with a vote taken at the Nashville Convention (Page 104 of proceedings).

Art. X. Associate Membership. Sec. 3 may be omitted as suggested, as it is embraced in Sec. 2.

Art. XI. Fees and Dues. We do not recommend raising the annual dues from $3.50 to $5.00 as suggested by your predecessor. If the income is not sufficient to cover the expenses then it would be well to look into the matter of expenses to see if they may not well be reduced.

Art. XII. Members in Arrears. We recommend an entire revision of this article as follows:—

Section 1. The fiscal year of this Association shall begin September 1st of one year and end August 31st of the succeeding year. Any member whose bill for dues or assessments, is not paid by the first day of January following the September when they become due, shall be deemed delinquent and be suspended from membership, if dues remain unpaid after due notice has been mailed by the Secretary to his last known residence, or place of business.

Sec. 2. Members in arrears for dues may hold seats in the Convention, but such members shall not be entitled to vote or take part in any discussion, or in the transaction

of any business brought before the Association until such arrears are paid.

Art. XIII. Meetings. We recommend the raising of the quorum from ten to twenty members as suggested, as a possible safeguard for the transaction of business.

J. W. GIBBONS,
CHAS. A. COOK,
B. E. MILLER,
J. H. PITARD,
CHAS. E. COPP, Chairman
Committee.

ADDITIONAL REPORT.

Supplemental to the foregoing, we recommend an Auditing Committee, to consist of two members, to be appointed by the President annually; and herewith offer the following additional amendments to the By-Laws to cover the same:

Art. IX. Standing Committees. Sec. 1. After "an Information Committee" add "an Auditing Committee to consist of two members."

Duties of Committees—Add a new section, No. 5, to read as follows: "It shall be the duty of the Auditing Committee to review all the annual expenses of the Association, inspect all vouchers to see that they are correctly drawn, and that they together foot up to the total expenditures legitimately incurred, and approve the same and report to the Association at the annual Convention."

J. H. PITARD,
C. A. COOK,
J. W. GIBBONS,
B. E. MILLER,
CHAS. E. COPP, Chairman
Committee.

MR. LITTLE: I move the adoption of the reports as a whole.

(Seconded by Mr. Becker, and carried.)

THE PRESIDENT: We will have the report of the Committee on Passenger Car Roofs, Mr. Pitard, Chairman.

MR. PITARD: I regret to state that the Committee is not yet ready to report, and we ask that the report be deferred until the next convention.

THE PRESIDENT: If there is no objection, that action will be taken.

We will hear now from the Entertainment Committee, Mr. Cook, Chairman.

MR. COOK: We will submit the little pamphlet which contains the program of the Supply Men's Association, as our report. Our ideas are embodied in that. We have simply acted in the capacity of a board of censors to see that everything was as the Association would like to have it in connection with our entertainment here.

THE PRESIDENT: We will now proceed to the election of officers for the coming year. I will appoint as tellers, Messrs. Wilkins, House and Burton.

MR. COPP: For President, I desire to place in nomination Mr. Gearhart of the Pennsylvania Railway, and I move that the Secretary be directed to cast the ballot of the Association for him.

(Seconded by Mr. Burns, and carried, and ballot so cast.)

MR. GEARHART: Mr. President and Members of the International Association of Master Car and Locomotive Painters: I certainly appreciate this honor, and I will do the best I can, and shall work for the best interests of the Association. I thank you very much. (Applause.)

MR. BUTTS: It gives me great pleasure to place in nomination for the office of First Vice-President Mr. Gibbons, and I move that the Secretary be instructed to cast one ballot for Mr. Gibbons as First Vice-President.

(Seconded by Mr. Phillips, carried, and ballot so cast.)

MR. GIBBONS: Mr. President, I can only say that I will give to your successor the same support, or shall endeavor to do so, that I have tried to give you during your administration. I trust that I may be worthy of the honor that you have conferred upon me.

MR. LITTLE: For Second Vice-President I want to place in nomination one of our old faithful members, Mr. Ed Younger.

MR. BUTTS: I also want to nominate one of our old members, who has served us in various capacities, Mr. J. G. Keil of Elkhart.

MR. COPP: I will second the nomination of Mr. Younger.

MR. HINBURG: I will second the nomination of Mr. Keil.

(There were no further nominations, and ballot being had it resulted in a total vote cast of 72, 51 for Mr. Younger and 21 for Mr. Keil. Mr. Younger declared elected.)

MR. YOUNGER: Mr. President and Gentlemen: I thank you all for the confidence you have placed in me, and I shall try to the very best of my ability to serve you as well as my predecessors have. I thank you. (Applause.)

MR. JAMES: It affords me much pleasure to place in nomination for the post of Secretary-Treasurer my good friend, Mr. A. P. Dane, and I move that the nominations be closed, and that the First Vice-President be instructed to cast the ballot of the Association for Mr. Dane.

(Seconded by Mr. Little, carried, and ballot so cast.)

MR. DANE: I should be glad if you might know how much I appreciate the confidence you are placing in me. I have tried hard during the past year to get our affairs all straightened up, and feel we have succeeded, and I am indeed glad to have my work approved of by you in such a manner as this. I thank you very much. (Applause.)

THE PRESIDENT: Our time is somewhat short, but we will at least begin on Subject No. 1, "The Initial Treatment and Maintenance of Steel Passenger Equipment Roofs, Deck Screens, Deck Sash and Ventilators, for Their Proper Preservation." The first will be a paper by Mr. Wright.

Subject No. 1—THE INITIAL TREATMENT AND MAINTENANCE OF STEEL PASSENGER EQUIPMENT ROOFS, DECKS, DECK SCREENS, DECK SASH AND VENTILATORS FOR THEIR PROPER PRESERVATION.

Mr. President and Gentlemen:—

The preservation of the parts enumerated in this subject, on account of the severe exposure to which they are subjected, seems to present one of the most difficult problems connected with the painting of steel passenger equipment cars. The heat from the sun, moisture from dew, frost, hail, rain and snow, tend to destroy the life of the paint coatings applied for their protection. The gases from locomotives, especially in the tunnels, are more severe on the roofs, decks, deck screens, etc., than on any other part of the car. The abrasion caused by cinders and, in many cases, from the feet of employes while walking on the roofs to fill water coolers, tanks and refrigerators, wears away the protective coatings and in time exposes the metal.

While the subject in hand is on the initial treatment and maintenance of the parts in question, their preservation is so much affected by their construction that it may not be out of place to point out, at the outset, the advantages derived from having plain surfaces to protect, free from corners and pockets where cinders may lodge and collect moisture, and in this manner make dilute acid which acts chemically on the metal, wherever it can be reached. In this connection it may be of interest to quote from a paper I read before the Convention last year on "Suggestions on the Design and Construction of Steel Passenger Equipment Cars to Make Them Better Fitted for the Protection Offered by Paint Coatings." Speaking of the roofs we then said "that we feel that the joints of the steel roof sheets should project as little as possible above the main surface of the roof" and in connection with the decks and screens "that it appears desirable to construct steel cars without deck screens,

and use ventilators in place of deck sash for ventilation." These suggestions were made with a view to reducing, as much as possible, all projecting surfaces likely to suffer from the abrasion of cinders, and to avoid pockets and inacessible places, and make all parts easy to reach when coatings are applied for their preservation

Corrosion of steel roofs, decks, deck screens, etc., is the principal cause of their deterioration and the metal in these parts should be protected adequately from the outset, to prevent the corrosion from getting a start. If once started, we all know what an exceedingly difficult thing it is to stop, especially on the parts under consideration. There appears to be a difference in the formation of the corrosion which takes place on the steel roofs as compared with the rust that forms on steel sheets which are in a vertical position. The former seems to start with a pit which gradually extends its circumference and eats its way deep into the metal, while the rust on vertical sheets remains more on the surface. This is probably due to the fact that on the horizontal sheets the moisture which is always present when corrosion takes place, hangs in the cavity of the pit and accelerates the corrosive action, while the vertical surfaces naturally dry off more readily. We are also inclined to think that many of the pits on the roofs are started by hot cinders which fall on the horizontal parts and burn their way through the paint coatings, and in this manner expose the metal.

The steel should, of course, be properly cared for from the time it leaves the mills until the parts are assembled and applied to the cars, and not allowed to rust. During the process of construction, all overlapping joints should be filled in with a thick protective mixture and made watei tight. The underside of the roof sheets, the back of all deck sheets, and all hidden parts should be thoroughly cleaned and receive two coats of a good metal preservative paint before being covered up, after which the exposed surfaces are ready for the initial treatment.

Initial Treatment

The cleaning of the metal is the first and one of the most important steps in the initial treatment. All oil, grease, dirt, scale and rust should be entirely removed before any coatings are applied for the protection of the metal. Benzine will remove the oil and grease, but the sand blast is, by far, the best means of preparing the steel for the paint coatings. It not only removes the dirt, scale and rust, but also roughens up the surface of the metal so that the priming coat has a better opportunity to "hold on" to the steel.

We will assume that paint is generally recognized, at the present time, as being the most suitable material for the protection of steel. What is Paint? Mr. Houston Lowe, in his work on "Paint for Steel Structures," defines it as being

"Pigment, plus binder, plus paint maker," and the same author says that "Paints for steel may be divided into three general classes, namely: Oil paints, varnish or resin paints, and tar paints." Each of these general classes may be again divided into any number of grades and varieties, with varying degrees of merit.

After the steel has been sand blasted, the next step is to decide the kind, or kinds, of paint to apply and the number of coats. I think we can exclude the entire class known as "Tar paints" as being unsuitable for this work. Oil paints will give more satisfactory results, but, better still, are paints made with both linseed oil and varnish in combination, with sufficient volatile liquid to make them dry and work properly. The addition of varnish to the linseed oil makes a paint that will flow better than a straight oil paint, and it gives a less porous film, and one more even in thickness.

For the first, or priming coat, we consider it good practice to apply a thin paint carrying a small quantity of very finely ground pigment so that it will penetrate as far as possible into the pores of the metal. The pigment may be oxide of iron and inert material. This coat should be applied immediately after the metal has been cleaned with the sand blast, before there is time for corrosion to form on the freshly cleaned metal, and it should be well brushed during its application. I might add that there are a number of good metal primers on the market, one of which may be used, if desired.

The succeeding coats should have good body, a generous supply of pigment being used in the mixtures. We have found good oxide of iron paints suitable for these intermediate coats.

The finishing coat must conform to the standards of the different railroads, but we consider a good lamp or carbon black paint the most suitable, because it gives a nonporous film with excellent wearing properties. This should also be a combination linseed oil and varnish paint, with only enough volatile liquid to make the paint work properly In connection with the finishing coat I might say that we have found it good practice to discard the use of body colors on the decks and deck screens and paint all parts one color, black, from body eave moulding on one side of the car to the body eave moulding on the opposite side. This simplifies the painting of these parts, especially at the terminals, as it is then necessary to carry only one color to the top of the car.

To overcome the abrasion caused by cinders, also the troubles due to hot cinders falling on the steel roofs and burning out the life of the paint film, we find it good practise to sprinkle sand in the last coat of paint at the initial treament. This, however, is not necessary on railroads where oil is used for fuel in the locomotives, or if cinders give no

trouble, but I believe all coal burning locomotives throw more or less cinders when working on grades.

As to the number of coats that should be applied, I would mention the fact that it is now almost a universal practice to apply to the exterior body of new steel passenger equipment cars, from three to five coats of surfacer, two of color, and three of exterior finishing varnish, or a total of eight to ten coats, and our observations lead us to believe the bodies are pretty well protected. The roofs, decks, deck screens, etc., however, get only three or four coats as a rule, though the exposure is much more severe on these parts. From this it would seem that we may be applying more coats than are actually necessary for the protection of the steel on the exterior bodies, and less than necessary on the roofs, decks, etc. Of course, some of the coats are applied to the body for the purpose of producing a good surface, and the color coats have little body, but, even so, the comparative number of coats applied to the roofs, decks, etc., as compared with the bodies seems incongruous. We are of the opinion that additional coats may well be applied to the roofs, decks, etc., at the initial treatment, and to good advantage. Four coats should be the minimum, and five may be better.

Maintenance.

The maintenance of the roofs, decks, deck screens, etc., is fully as important as the initial treatment, for they should be maintained, at all times, in such a manner that there is no chance for corrosion to get started. I hardly think it a feasible proposition to lay down hard and fast rules stating the exact time these parts should be repainted, for on the mountain divisions where there are numerous grades and tunnels, a few months service may be more severe than a year's service in a prairie country, where there are few grades, and no tunnels, or where oil is used as fuel in the locomotives. Again, some cars make considerably more mileage than others. In our opinion, watchful care is more essential than anything else to the preservation of these parts of the car. A paint with only moderate wearing properties, applied at the right time to prevent corrosion, will give better results than the best materials applied at irregular intervals, or after the parts have become corroded. I have been told that some railroads have painters at the principal terminals to watch the roofs and decks, and touch them up, or repaint them as may be necessary to keep them at all times in good condition. This may prove to be the most economical method in the long run. Unless the equipment is sent to the shops with considerable regularity, it is not safe to neglect these parts until the cars may be sent in to the shops for other repairs. They must be repainted at the terminals in accordance with their needs.

In conclusion we would again suggest the advisability of applying additional coats to the roofs, decks, deck screens,

etc., at the initial treatment, and because of the variation in the service and exposure to which the various cars are subjected, we would emphasize the necessity for inspecting them carefully while they are in service, and repainting as often as may be required to prevent deterioration. (Applause.)

Respectfully submitted,

J. D. WRIGHT,

General Foreman Painter, Baltimore and Ohio Railroad.

Baltimore, Md., September 1st, 1916.

(Applause.)

THE PRESIDENT: Before the next paper is read, I will ask the Secretary to read a couple of communications we have here.

Office of President.

Waycross, Ga., July 8, 1916.

Mr. R. E. Smith,

General Superintendent Motive Power,

Wilmington, N. C.

Dear Sir:—

As presiding officer of the Master Car and Locomotive Painters Association I extend to you a most cordial invitation to meet with us at our next annual convention which will be held in Atlantic City, beginning September 12th and ending September 15th.

It would indeed be a great pleasure to me personally to welcome you and I can assure you, your attendance would be very much appreciated by the members of the Association. We often have officials from various railroads visit us and encourage us in our work.

I am sure you appreciate the good work that is being carried on by these Associations and I sincerely hope you will be able to be with us.

Yours truly,

H. HENGEVELD, President.

Wilmington, N. C., July 10th, 1916.

Mr. H. Hengeveld, President,

Master Car and Locomotive Painters' Association,

Waycross, Georgia.

Dear Sir:

I have your very kind invitation to be present at the next meeting of Master Car and Locomotive Painters' Association, at Atlantic City, September 12th-14th.

It would give me a great deal of pleasure to attend, particularly in view of the fact that you are presiding officer of that Association, which has done such excellent work for the railroads in the country.

For important reasons, it will be impossible for me, at this time, to accept your kind invitation, but I wish you and your Association, the greatest amount of success, and trust that your meetings will be pleasant, as I am sure they will be profitable, to those who attend.

Yours truly,

R. E. SMITH,
General Supt. Motive Power.

THE SECRETARY: I move we make Mr. R. E. Smith an honorary member of this Association because of the interest he has taken in our Association.

MR. BECKER: I will second that.

THE PRESIDENT: Mr. Smith is very much interested in railway organizations. He is a member of the Master Car Builders' Association, and he has the interests of all the railway associations very much at heart. Unfortunately, he has been sick for some time, or I am positive he would have been with us here. I know he will appreciate our making him an honorary member.

(Motion carried.)

MR. YOUNGER: If it is in order, I move the letter be made a part of our records.

(Seconded by Mr. Houser, and carried.)

THE PRESIDENT: The next is paper by Mr. O. P. Wilkins on Subject No. 1.

Subject No. 1.—THE INITIAL TREATMENT AND MAINTENANCE OF STEEL PASSENGER EQUIPMENT, ROOFS, DECK SCREENS, DECK SASH, AND VENTILATORS FOR THEIR PROPER PRESERVATION.

Mr. President and Gentlemen:

To my mind the most important question before this Convention is the protection of our steel passenger equipment. I believe this of more vital importance and of more far-reaching consequences than any subject that we might consider in connection with the steel car, particularly that part of the car above the letter board. Insufficient protection to the roof parts of our steel passenger cars would be most difficult to correct in the future, would be fraught with great danger, and might in the coming years culminate in disaster. Our future reputation, progress, and prosperity may be determined by this Convention. Our recommendation upon this matter may determine far in the future whether our pathway shall be one of success and good standing, or fraught with uncertainty, difficulties, defects, and humiliation. I deeply feel that the importance of our subject warrants this Convention in making some definite recommenda-

tion, especially so with reference to inspection and maintenance at terminal points.

The history of the steel car teaches one sure lesson—that protection and beauty to a steel surface can only be secured by the application of a paint film, made up of the proper pigments and vehicle, and that the lack of a deep sense of appreciation of this matter will sooner or later mean a rapid decay of the whole structure. In this connection we must not lose sight of the fact that the protective values of a paint film are governed as much by the degree of care in applying the paint as by the contents of the mixture; a good composition, prepared along scientific lines, can be made to render poor service because of improper application, and the results obtained be no better than that of a crudely prepared mixture. Therefore, the maximum of effectiveness can be realized only when the best of materials are used, under proper conditions, and to a correctly prepared surface with competent employes.

The advent of the steel passenger car has brought with it some new questions to be solved. At first, we embraced the thought that inasmuch as we had finished and protected, with a large measure of success, locomotive tenders, and locomotive cab roofs, the steel passenger car would be a "cinch," but time has demonstrated that the steel passenger car is subjected to greater punishment, and along a line entirely different from that endured by the locomotive. We have learned that the cinder exhaust from the locomotive is more deadly in its effect on our passenger car roofs than the sulphur is to the tender loaded with coal and water. We have good reason to believe that if our passenger car roofs are allowed to continue in service with scant inspection and a lack of knowledge with regard to the protecting values of a good coat of paint, it will be but a comparatively short time until the whole structure becomes a mass of corrosion, which eventually will require the renewing of many parts.

Having furnished the reasons, as we see them, for our subject, let us consider the remedies that might be inaugurated to forestall the well known results if ignored. There are three elements that must enter into a proper protection for our steel passenger car roofs, decks, screens, sash, etc., to wit, the preparation of the steel, quality of paint, and the application of the material. As I said before, no matter how well the surface is prepared, if the right kind of material is not used, the effort is practically lost; and no matter how well we prepare the surface, nor with what care the coating is compounded, if it is improperly applied, we may look for an early failure. With this well in mind, it behooves us to lay a good foundation, and proceed along lines that are known to produce the best practical results.

We have admitted, indirectly, that we have more or less trouble in protecting the upper parts of our steel passenger cars, and the main reason is because we have adopted the

DECK SCREENS.

Our subject does not invite criticism in the use of the deck screen, yet we have often wondered if there was any real merit attached to its use. Its use is most generally confined to the equipment having the tilted or hinged deck sash opening, and merely limits the size of the sparks to be admitted to the car. The cinder and dust accumulation on the side deck behind the screen is a constant source of trouble, owing to the fact that it retains moisture. However, we have the screen and we must take care of it.

Like all other parts of the steel car, I believe the metal frame should be thoroughly sandblasted, primed immediately with red lead, and then follow up with a good surfacing system in keeping with the other parts of the car. Our system on the Norfolk & Western embraces but a few operations, which are as follows: After the priming is dry, apply one coat of a well known surfacer, knife in the rough places, sandpaper, and apply two coats of enamel and one coat of body varnish.

For maintenance, we suggest careful, competent inspection at terminals, and when the occasion demands, apply a coat of enamel. When the car is shopped, remove all screens, clean out all the inaccessible places, remove all corrosion and touch up the bare spots with red lead, apply one coat of enamel and varnish complete.

DECK SASH.

The initial treatment and maintenance of deck sash should be in accordance with the other parts of the car. If steel, they should be finished in the same manner as the body of the car, except that if they are made out of what is known as "furniture steel," the sandblasting would be of little or no value. If wood sash are used, the regular surfacing system should be employed, finishing up with at least two coats of body varnish.

For maintenance, the same care should be exercised in looking after the sash as that employed on other parts of the car, and give them the required attention at the proper time.

VENTILATORS.

Ventilators, like the roof of the steel car, get the lion's share of everything. Ventilators are used on top of the roof and on side of deck, and may be made from galvanized iron, black iron, or tin. Regardless of location, they should be kept well painted and protected from the elements. The initial treatment in the case of galvanized iron or tin should first be given a coat of red lead priming, and if black iron or steel is used, they should, of course, be sandblasted. After the priming, follow up in same manner of treatment as the roof.

Mr. President, this is a short summary of my views in connection with the initial treatment and maintenance of the upper parts of steel passenger equipment. And if we are to be successful in this day of speed and inferior materials, we must keep our eye upon the rail of inspection and our hand upon the throttle of action, with the thought always in mind that if we are to succeed in the prevention of corrosion, our progress must be in advance of the agencies that make for destruction.

It is the sincere wish of the writer that the subject will be discussed from all its angles, and that those having the care of steel passenger cars entrusted to them, will give us the benefit of their experience, which, after all, is the only guide we should follow.

Respectfully submitted,

O. P. WILKINS, Foreman Painter,
Norfolk & Western Railway Co.

Roanoke, Virginia,
September 7th, 1916.

THE PRESIDENT: The next is a paper by Mr. H. Heffelfinger.

Subject No. 1.—THE INITIAL TREATMENT AND MAINTENANCE OF STEEL PASSENGER EQUIPMENT ROOFS, DECKS, DECK SCREENS, DECK SASH AND VENTILATORS FOR THEIR PROPER PRESERVATION.

To the President and Members of the Master Car and Locomotive Painters' Association:

It may be tiresome to hear again that before any steel surfaces of a passenger car are painted they must first be made free from scale, rust, grease, acid, etc., and yet this is the initial treatment the parts mentioned in subject No. 1 should receive.

To my mind there seems to be only one way to guarantee a thorough cleansing of these parts and that is by sandblasting, either before or after assembling, as the use of wire brushes, scrapers and sand or emery paper will not suffice in reaching all the defective places. I am almost fully convinced that to procure the best results in protecting the metal surfaces after being sandblasted is by using elastic primers that should be baked on, when it is possible to do so.

Of course it will be understood that these primers should be applied to all surfaces where metal bears on metal before assembling, and all concealed parts, such as the hoods, under surface plates forming the roof, and the ventilators on cars having stationary sash, must receive a second and third coat of paint before complete assembly, preferably by using an approved steel or iron paint of two colors to make sure

of safe inspections. The same rule should be followed in painting the top of the roof; that is, it should not receive less than three coats of a well tried out elastic mixture.

The decks, deck screens and deck sash should be primed outside and inside with the same kind of material used as a primer on the body. The outside of these parts should then be followed up with two coats of body color (not too flat), and two coats of the same kind of finishing varnish as is applied to the body outside. The painted finish of the inside of decks and deck sash after being well primed depends somewhat on the finish the interior of the body is to have up to the varnish coats.

Barring this feature, it is evident that to get the maximum wear out of painted surfaces on the interior of steel passenger equipment cars, they must be covered with as slow a rubbing varnish as possible, sacrificing to some extent the finer finish a quicker rubbing varnish would make. Unless this is done a checked or perished surface will surely develop in a short time, owing you know to the exposure the quick or non-elastic varnish receives through condensation and extreme changes in the temperature of the steel.

In my opinion these parts mentioned in Subject No. 1 must be cut away from the body and classed by themselves for the proper treatment and maintenance, for it matters not in what condition the paint seems to be on the car body when receiving class repairs, these parts should be thoroughly examined on the exposed or outside portions.

If the roof is badly rusted it should be sandblasted and painted the same as if new. If not badly rusted, it should be gone over with wire brushes and scrapers and given at least two coats of well brushed out elastic paint. The first coat to be applied as soon as practicable after car is received, so as to allow as much time as possible between coats while car is held for class repairs.

The deck outside, having stationary steel sash, should be scrubbed and rust cleaned off with scrapers and wire brushes. A coat of primer should be applied when needed, followed up with two coats of color and varnish, using finishing varnish in the color.

The crown moulding on deck, if curved inward forming a spout like shape, should be beaten with wooden mallets or clubs to loosen the rust and dirt on the inside before painting. I have noticed in some cases this style of moulding and the face of deck bearers on ends of the inside of steel passenger cars to be entirely rusted through. One car in particular we had in our shop last fall, on which we found all but the upper deck moulding returns to be rusted away. The rust had started to eat the edge of the roof plates also. Before the sections of the new mouldings were replaced, I had two coats of our standard freight car color baked on them. Each coat of paint was baked for five hours at 300° F. The paint was mixed without japan. This was done to see what

effect the riveting, which was done cold, would have on the baked paint. As far as could be seen the paint was not injured in the least, whereas had it been air dried paint it would have been spoiled, unless perhaps it were left to dry for several months.

Deck screens must be removed from all cars as they pass through shops for class repairs, so that they can be thoroughly cleaned and repainted, also to give free access to the deck sides for their proper treatment. They should be replaced before the last coat of paint is applied to the roof, and should receive a coat of finishing varnish after they are in place.

Deck sash must be carefully gone over and the loose putty or cement removed, or rust will form on the rails and mullions in a short time where the bedding is loose or falling out, and if not cleaned and repainted will rust entirely through the thin steel before another shopping season.

Concerning ventilators, would state that I made mention that the face of deck bearers on ends of the inside of steel passenger cars were in some cases badly rusted. This of course is caused by condensation through the down take system of ventilation at these points, with no escape for accumulated moisture. The roof intake ventilator hood can be removed, well cleaned and paint sprayed on. The down takes are formed from copper, but how are we to keep in proper preservation the cup or spout shaped steel portions which are concealed?

It doesn't seem feasible to overcome this trouble unless it be through reconstruction, and until we are helped along these lines, we must depend entirely upon the coats of paint the concealed parts get before they are assembled. To attain the object of such coatings so as to reduce their deterioration to a minimum I believe they should be very elastic in nature, with very little japan if any, and baked on the steel.

H. HEFFELFINGER.
Foreman, West Philadelphia Paint Shop, Pennsylvania Railroad Company.

(Applause.)

THE PRESIDENT: As this is an important subject and will naturally be discussed at some length, I believe it would be better to take our adjournment at this time.

MR. BISHOP: I move we adjourn until tomorrow morning at nine o'clock.

(Seconded by Mr. Houser, and carried.)

WEDNESDAY SESSION.

The meeting was called to order by President Hengefeld at 9:15 a. m.

THE PRESIDENT: Before proceeding with the regular program, we will have the report of the special committee

on the treating of locomotive tanks, interior and exterior, Mr. Buchanan, Chairman.

SECRETARY: Before Mr. Buchanan reads, I would like to present the following from ex-President Warlick:

MR. WARLICK'S LETTER.

Chicago, Ill., September 12th, 1916.

Mr. A. P. Dane,
Secretary,
M. C. & L. P. Association,
Atlantic City, New Jersey

Dear Sir:

To the Officers and members of the M. C. and L. P. Association—it is with regret that I am unable to attend your meeting at this time—owing to the strike which did not take place—I was unable to get transportation in time; therefore had to forego the pleasure of being with you this year. I hope that the Association can see its way clear to hold its meeting in Chicago next year, as we have a billion dollar pier, which is considered the seventh wonder in this country, and many other attractions also.

I hope that this meeting will be one of the best meetings we ever had. The President, I know, is able to handle with due honor to the Association.

With kindest regards and best wishes,

Sincerely yours,

GEO. WARLICK.

Buffalo, N. Y., July 19th, 1916.

To the officers and members of the Master Car and Locomotive Painters' Association:

Gentlemen:

At the Detroit meeting a resolution was passed to ascertain how locomotive painters in the various parts of the country treated tanks of locomotives, both interior and exterior.

A committee of ten was appointed by the President, of which I was made Chairman. Upon receipt of notice, I mailed a copy of letter to each member with a request to state their views. A number have very kindly complied, and I have attached their letters to my report. All are agreed that it is money well spent to thoroughly protect our locomotive tenders.

Just what was the thought of the mover of the resolution in regard to interior of tanks is not quite clear to most of us. However, for one, I take it he meant coal spaces, and top and bottom of tank.

I have never been called upon to paint the inside of a cistern. However, I do know that it is recommended as a good practice in regard to water tanks, etc., if it will pro-

long the life of them, why not the life of the locomotive tender?

Personally, I prefer the sandblast for removing paint and flash scale from steel surfaces; after which a good metal prime must be applied as soon as possible after the blasting is done, and allowed to thoroughly dry, before the second coat is applied, after which the puttying and knifing coat is applied, then apply your rough stuff coat, colored with dry ochre, which served as a guide coat, and rub next day. Thoroughly sandpaper, then apply two coats of black enamel or one coat of Japan lamp black and one coat of black enamel, letter and stripe, and apply one coat of rubbing varnish, and one coat of good elastic finishing varnish.

Through an experience of a number of years, this treatment has proven very satisfactory. Surfaces thus built should last four or five years before again being obliged to sandblast.

Since writing this paper, I have ascertained that a number of roads are painting the interior of tanks with a red lead mixture and consider it good practice, as it prolongs the life of the sheets several years and prevents cutting out the tenders frequently for the purpose of patching up leaks, caused by the middle and lower flanges becoming corroded.

Yours truly,

W. A. BUCHANAN. Chairman.

MR. P. A. LAWTON: If we applied as many coats as are suggested there, under present conditions, we would not get the locomotives out in time. Today they want to put them in in the morning and get them out in the afternoon. This might have been all right twenty-five years ago, but today it wouldn't work on the road I am with. Can you give me any information as to how to remove the paint without the sandblast?

MR. BUCHANAN: Any good paint remover will give good results, but of course the sandblast is the best and cheapest.

MR. E. E. LEWIS: We have had considerable experience along that line. We are in the position of Mr. Lawton as regards need for haste. We must do all our painting while the other mechanics are working on the tank, and it is impossible to use the sandblast. We have used different removers, but of late we are using the good old-fashioned way of scraping it off with scrapers. It is hard, but we manage to get it done, and it doesn't cost us very much. We have a piecework price, and get it done cheaper than with removers.

As to number of coats, on our road we have a circular issued to all the paint shops, giving all the operations that are to be performed. But we do as the tailor does, we cut according to the cloth; if we get the tank in the morning

and they say it must go out in the evening, we do a day's work on it; if we can keep it three or four days, we give it a few more coats, and if we can have it a week, we do a good job on it.

MR. KEIL: One paper spoke of painting the tenders on the inside. Most railroads are using a solvent for softening the water, and those solvents will ruin any paint except perhaps one made of cement. Oil paint, whether it be red lead or anything else, will not stay on over a week. Take a plate and coat it with any oil paint, and submerge it in a pan for forty-eight hours with that solvent in the water, and you can take off the entire film; on glass inside of twenty-four hours. The same action takes place inside of a tender. I used to paint tenders inside, but haven't for the last twenty years, and believe it is a waste of money.

MR. GIBBONS: We used treated water; in fact, on some parts of the road it is necessary to treat the water in order to get any service whatever from the fluids. There is a deposit brought out of the water by the treating process—it is in the form of a calcium carbonate—that adheres to the interior of the tank, the braces and the sides of the iron, and gives a form of protection to the tank and the iron on the interior, and we have no bother whatever in that respect, and do not paint them. Most of those processes for treating water will bring out the lime scale from the water, and leave the deposit on the inside of the tank. Have you noticed that, Mr. Keil?

MR. KEIL: Yes, we have noticed it.

MR. GIBBONS: I consider that a form of protection, a paint in fact that gives the interior of the tank better protection than with any oil paint we could put on.

MR. KEIL: I move the report be received and made a part of the records.

(Seconded by Mr. Houser, and carried.)

THE SECRETARY: I believe the Committee should be continued.

MR. WILKINS: I will so move.

(Seconded by Mr. Miller, and carried.)

We have with us a very good friend of this Association and a prominent railway official. I would very much appreciate a word from our friend, Mr. Brazier.

MR. BRAZIER: It gives me a great deal of pleasure to be with you here as I am a strong believer in the good work which this Association and other associations of this character are doing in their line of work for the interest of the railroads throughout the country, also feel very glad to see in the audience my good friends Warner Bailey, Mr. Cook, Copp, your honored Secretary Mr. Dane, Butts and many others that have been connected with this Association for a long time.

You have a very important part of railroad construction to do; the proper painting and maintaining of its equipment. Certainly you men should be in a position to know what is best for the equipment, and by experimenting and testing should find out how to treat the steel equipment of the railroads, which as yet is in its infancy regarding its maintenance, and I believe the experience which you obtain by coming in contact with the equipment every day, you should be in a positon to give the railroads of this Country valuable information.

However, I have a request to make of you Mr. President and members and do not care to have my remarks published, as what I would like to say is more of a heart to neart talk with you one and all, and I will try and be brief:

Two years ago I was invited to attend your convention or if not to write a letter and make some suggestions, the latter of which I did. Unfortunately, perhaps had I been in the convention in person I could have had my suggestions better understood. I had good reason for making the suggestions I did. I knew a few years ago the tendency was for some officials to think that associations of your character and others, were unnecessary, and I was endeavoring to place before you your showing to the railroad of the importance of the work you were doing and the information that you could give.

One of your members took what I said in the wrong spirit and said he did not wish to see the Association New York Centralized. I assure you and all the members that was the farthest thing from my thoughts to see this Association influenced by any railroad or organization only for the best interest of the Association.

However, there are some things that it would be well to consider what New York Centralizing might mean to you as an association and to you as individual members. I can best illustrate by calling your attention to a picture of a new locomotive, which you will see advertised in a great many railroad magazines as belonging to the A. B. C. Railroad. In the left hand corner you will find Mr. Patrick Smith, Supt. of Motive Power, the inference is, that the Superintendent of Motive Power was the Designer, Builder and the locomotive was the result of his brains. The point I desire to make is that on our system we are building a lot of new steel passenger equipment; recently two of the cars were turned out and a letter was sent to the General Manager in which attention was called to two photographs of the two cars turned out, complimenting the men at West Albany from the Division Officers down to everyone connected with the shops for the splendid work which they had done and stating that we were fortunate in having a force of men that were competent to turn out such fine work. The name Superintendent of Rolling Stock appears signed to the letter but he gives credit to the men that did the work.

For a moment just look at the locomotive, let us see how much the Superintendent of Motive Power did toward building it: In the first place the material was brought in by the Laborers, the Machinists had the bearings, axles, rods and everything else fitted up properly, the Assemblers assembled the engine, the Boiler Makers built the boilers, and if a wooden cab the Carpenters built the cab, and last but not least, the Painters painted the engine and covered up the poor workmanship of the other mechanics, if there was any, so you can see the part that the Painter did toward making the engine look as fine as it does.

Please understand I am not saying a word against the Superintendent of Motive Power or anyone else whose name appears on the picture, but I wish to convey to you that it is the co-operation of all the different employes that brings about the best results and they should be given credit for the part they do.

It is a well known fact that many heads of departments have very little to do with the designing of a car or locomotive, there is more than one interested. The New York Centralizing of a thing of this character is to give credit to all concerned for accomplishing the building of a car or locomotive, as well as all other work.

I would particularly like to say something to the young men in this Association of the possibilities and the opportunities there are for you to advance; do not be content to drift along with the tide. There is no reason why many of you should not rise to positions out of your own department. We endeavor to promote our young men as fast as they show ability, no matter what department they are in.

On my staff for a good many years I have had a Master Painter, whom we used, not only in the painting line, but other mechanical matters, and his advice has been sought by many leading railroad officials of the country. Were it not for his health he would still be on my staff. He requested to be relieved of the constant travel, and I refer to your past President, Mr. H. M. Butts. We now have in his place Mr. Bigelow, whom we intend to educate for a Division man, believing that because a man starts in the Painting Department that he should advance step by step the same as other employes.

I think I have said enough to show you what our system is. As I stated in the start I know the good work you are doing, and I feel that you can make yourselves a strong factor as an association if you continue to take up the subjects that pertain particularly to the painting and maintenance of freight and passenger steel equipment. I am glad to say that the feeling which existed a few years ago has quieted down a great deal, that is, against associations of this character.

We have our representatives come here for the reason we want them to keep in touch with all matters pertaining to your work and then give us the benefits of their attending the convention.

I hope that in this plain talk that I have given you I have convinced you that my motive in writing you as I did a couple of years ago was for your own good and I assure you I am a firm believer, in your organization and the good work you are doing.

Some time ago I made an address in the New York Railroad Club and I shall quote in part the poem which I read, which is applicable to your Association:

"Here interesting papers are read and discussed by all,
Each member ready to respond to any call.

When railroads are busy and let alone,
Men are working, not driven to the soup house bone.

This country will honor the railroad's work of the past,
And it is solid like the mountains, and will last.

Wonderful things the roads are always doing,
While the calamity howlers do nothing but chewing,

Villages, towns and cities, that have sprung up on the right of way,
Had it not been for the railroads, never would have seen the light of day.

Railroads are run over a roadbed of stone and steel,
Have developed the Country, and Nature's wonders revealed.

All this has been done in the past,
But if the Politicians keep on changing the laws,
God only knows how long it will last.

Let the people arise and put down the agitator and anarchist with the red flag.
The men who built up this country are the railroad men who followed the grand old U. S. Flag."

Mr. President I want to thank you for this privilege of addressing you and I trust that I have convinced you that the points that I tried to bring before you two or three years ago were absolutely correct as I was only reiterating the feelings of certain officials regarding associations of this character.

I can not wind up with anything better than the following poem, the title of which is "My Creed."

"I would be proud, for there are those who trust me,
I would be true, for there are those who care.
I would be strong, for there is much to suffer.
I would be brave, for there is much to dare.

I would be friend to all the poor and friendless.
I would be giving, and forget the gift.
I would be humble, for I know my weakness.
I would look up, cheer up, love and lift."

THE PRESIDENT: On behalf of the Association, I want to thank you, Mr. Brazier, for coming here this morning and giving us this fine talk. Through my Superintendent of Motive Power, Mr. R. E. Smith, I have learned a great deal of Mr. Brazier, and we thank you most heartily for giving us this talk this morning. We elected Mr. Smith an honorary member yesterday.

MR. BRAZIER: You have elected one of the most gentlemanly and scholarly men I have ever met in committee work in my life.

THE PRESIDENT: We will now have report of Committee on Information, Mr. Brill, Chairman.

We, your committee, beg to report as follows:

We regret very much that our duties have not been very arduous during the past year.

We have held ourselves open for any question that might be asked of us, but have received none.

Yours truly,

H. E. BRILL, Chairman,
W. H. BURSEN,
F. BOWERS,
W. H. DUTTON,
W. H. TRUMAN.

THE PRESIDENT: We will now proceed with the discussion of Subject No. 1.

MR. BUTTS: I can endorse nearly everything in the papers yesterday, but there is one thing in Mr. Wright's paper regarding the painting of steel roofs that my experience leads me to disagree with. Several years ago we got a series of new steel cars with sanded roofs, and I have watched the wearing qualities of the paint applied to those roofs with much interest. I found that corrosion started and developed far more rapidly upon the roofs that were sanded than upon other roofs that we painted with ordinary plain oil paint. In every case where I examined a roof that was sanded, especially the horizontal surface of the roof, I found that corrosion started within a few months after they were put into service. It was a mystery to me at first, but by studying the question I arrived at the same conclusion Mr. Wright arrives at, that the perpendicular surface of the casing around the deck lights does not corrode as rapidly as the horizontal surface itself. He gives as his reason for that that more moisture accumulates and remains there longer than on the upright surface. That is the reason the

sanded roof with horizontal surface corrodes much quicker than on the turn of the roof where you have a perpendicular surface. The sand holds the moisture, and we know how destructive moisture is to paint. Another objection I have to sanding the horizontal surface is that after your paint has become hard and dry, it has a tendency to peel and crack in spots, and the upkeep of a roof of that character is higher than one painted with ordinary oil paint. The only reason for sanding the roof is to prevent cinders from cutting their way in. A sanded surface will resist cinders better than oil paint, but there is no necessity for guarding against the cutting away of the roof on its flat surface; it is only on the projection or turn of the roof; that is where the cinders cut the paint. Our policy is to sand the turn of the roof, but not to put it on the flat surface.

MR. QUEST: I agree with Mr. Butts. We have some cars that were sandblasted all over, and they were sanded without having the base paint they should have had, and when that became dry it seemed to be a conductor to carry the moisture right down to the metal surface. We had a great deal of trouble, and could not use the sandblast to remove it. It was hard, and of course with sand against sand, slow work, and our sand, perhaps, wasn't of the quality it should have been. It took us some time to find out we were in serious trouble on those roofs, and the only thing we could do was to dry clean and repaint, and you may be sure we put no sand on the repainted roofs except on the turns. Sand creates a rough surface, and should not be used on the horizontal part of a passenger car roof.

MR. MILLER: Mr. Butts' experience is identical with ours in cases where we sanded steel passenger car roofs. The car building companies persuaded our people to have the roofs sanded all over. It had been our practice to simply sand the turns and the ends where the cinders would be apt to strike. Practically all of those cars, at the expiration of four or five months, showed signs of rust. It seemed to begin right from the steel and work its way up. As it became necessary to repaint those roofs, in many cases we were compelled to skin off the old paint and get down to the bare steel, we painted without reapplying the sand. It is something the government discarded years ago. When I was a boy the government specifications on all buildings called for sanding in imitation of sandstone, but they discarded it years ago. It caused shelling and peeling, and the rotting out of the woodwork, and while the appearance was all right, the protection was very bad.

MR. PITARD: Perhaps something can be said both for and against the practice of sanding car roofs. I believe the principal objection is that it holds moisture, and therefore helps to rot the paint, and in countries where there is a great deal of snow falling on the roof, that is especially true. Some time ago our terminal man had put up to him

the matter of taking care of the roofs, and as fast as the cinders would wear the paint away in spots—for it isn't the same all over a train of cars, but on certain cars of the train it may be worse, and in certain places on the cars—he began touching up those places, but it kept him pretty busy, and soon I noticed his cars were not being touched up very well, and yet they didn't seem to rust. I asked him what he was doing, and he said: "The cinders stick all over it, and become a protection instead of a destruction. It looks a little rough, but is not objectionable, and that seems effective."

MR. PRESIDENT: It might be interesting to hear from Mr. Grammar, for I understand he is sanding his cars.

MR. GRAMMAR: We are sanding all of our roofs, but I think it is a great mistake. I do not think any part of the roof should be sanded. We are compelled to sand them all over, because those are the orders we receive.

MR. HIMBURG: Some eighteen months ago we made a test of this sanding proposition, and the few that we coated with sand are going to the bad.

MR. BIGELOW: I agree with Mr. Grammar. I do not believe in the use of sand anywhere on a car. We need it at times and places, but not on a car roof. Our experience shows conclusively that with either the sand or combination of paint and sand, the sand evidently working through the undercuts of the paint, left an avenue for moisture to attack the steel, and is causing no end of rust. I have seen it on our cars and on the Pullman cars. I have seen a car sanded all over, a mass of rust.

There was a point lacking in all three of the papers that were read, in my opinion, and that is the weather conditions under which steel should be painted. We go to a lot of trouble sandblasting and removing the scale, dirt, grease and everything, in order to get a nice clean surface, and then we prime it on a murky day, when the humidity is very great. Iron and steel attract moisture, and after a piece of metal is sandblasted there are millions of places for the condensation to creep in, and we should not prime a car under those conditions. I believe metal of any kind should be painted under heat, not necessarily to bake it, but to have the metal hot enough to expel all moisture. Then you will obtain equally good results with a variety of different brands of paint. It isn't always the quality of the paint we use so much as the conditions under which we use it. We shouldn't paint over a piece of steel where we can see water, or if moisture is there, whether we can see it or not. If it is a nice bright sunshiny day, the car might be pulled out into the sunshine, and when it becomes warm and the moisture is expelled, then paint it. If it is in the winter weather, then it should be painted in a warm shop, and not in the sandblast shed where the weather is often full of frost.

MR. GEARHART: I noticed the Pullman people had their roofs sandblasted, and understood the New York Cen-

tral was sandblasting theirs, and I thought it was a good thing. On a couple of our special cars, we have the hoods sanded, but I don't think we shall go any further with it.

MR. BURNS: The principal objection we have to a sandblasted surface is the physical impossibility of immediately protecting it with paint before corrosion sets in. Such a roof is left in a condition very susceptible to corrosion because it has aggravated the condition that has already existed where corrosion has set in. So we have practically abandoned the idea of sandblasting, and have substituted cleaning metal with special pneumatic hammers and tools. We have developed some tools that clean the metal so that no corrosion shows, and I believe that method preferable to the sandblasting.

MR. DAVENPORT: We all know steel roofs require a great deal of care. I thought it might be a good idea to take a steel roof, sandblast it, and give it two or three good coats of paint, let it dry thoroughly, and give it a fourth coat, and instead of putting on the sand, give it a good coat of real finely ground asbestos. That might prevent the hot cinders burrowing down to the steel. I realize that would hold moisture, but you could give it a good coat of paint and perhaps prevent that.

MR. GIBBONS: I am afraid the method of treating car roofs by sandblasting may receive a little black eye here by reason of a misapprehension of conditions. Mr. Bigelow has made a very pertinent point as to the priming of these roofs in murky weather. Then the point was immediately made that if that were the case, and that if sandblasting aggravated that, it would perhaps be better not to sandblast the roofs. Now that same murky condition would prevail whether the roof were sandblasted or not, and if you paint over the metal in that condition with moisture on it, you are sealing the moisture in with your paint, and the nature of the steel would alone determine the results. Now, as has been said, it is for the chemist to tell us whether the steel is of the right quality to go into the roof. I believe the thing that causes the corrosion is the impurities in the metal, the sulphur, magnesia and those elements acting as a negative pole to the steel, and the water getting on there is the electrodes, and that forms the electrolytic action that causes the corrosion. We want steel with those impurities reduced to the lowest possible point, and still have durable steel. If we had a steel firm and solid and free from impurities then it would not be necessary to sandblast, because moisture would not get under the scale and aggravate the electrolytic action, but as long as we have the quality of steel that is being used on car roofs, I believe it is absolutely necessary to sandblast.

MR. BURTON: We have some roofs with a sharp edge. I have inspected them and found spots on each side of that edge standing in that shape (indicating). Evidently they

are nearly rusted through. We have adopted the red lead proposition, following it up with a good roof paint, three or four coats. If it is in order I now move you that it is the sense of this body that it is a great detriment to steel roofs to place sand on them, with the exception of the turns.

MR. GRAMMAR: I would suggest the entire roof. There shouldn't be any sand on it whatever.

(Motion seconded by Mr. Butts and carried.)

MR. COOK: We haven't put ourselves on record as to the main proposition. I would like to offer this resolution: That it is the sense of this Association that the following three essential points are involved in the initial treatment and maintenance of steel passenger equipment roofs, deck screens, deck sash and ventilators, for their proper preservation:

1st. Careful and thorough preparation of the material to be protected.

2nd. The selection of coatings of demonstrated protective qualities.

3rd. Periodical examination and treatment at terminal points.

I will move the adoption of that resolution.

(Seconded by Mr. Wilkins and carried.)

THE PRESIDENT: We will next take up Query No. 1, "To what extent is it necessary to remove trimmings from passenger car equipment undergoing paint shop treatment?" The discussion will be opened by Mr. Fryer.

Nashville, Tenn., August 28, 1916.

Mr. President and members of the Master Car and Locomotive Painters' Association:

Gentlemen:

To what extent is it necessary to remove trimmings from passenger equipment car undergoing paint shop treatment?

The above subject you have assigned to me, is one of considerable importance. There is no certain method for handling the work, for the treatment that will prove satisfactory at one time, will not answer for the next, although on the same car. I will take one car for illustration. A private car was placed in shop with orders that it must be finished the same day by quitting time without fail. The following work was to be done: roof, platform steps, and all outside iron work to be painted. Trucks and all glass cleaned. Outside body of car cleaned and renovated. Inside omitted. In a case of this kind, it is not necessary that the trimmings should be removed, for time will not permit, and besides, there would be nothing gained.

Next, I will take the same car where a good job is expected, or, for general painting, interior and exterior. In a

case of this kind, all trimmings should be removed before car is placed in paint shop. Next, we will take a baggage car. We all know that not as much care is taken with this class of car as with coaches, sleepers, diners, private cars, etc. It is not necessary, as these cars receive very rough usage. They are rarely ever entered only by road and shop men, besides, the trimmings are not very numerous, and usually are painted, especially after they leave the factory where built. On the interior, the guard rails and deck sash are about all that is necessary to be removed on the inside, and in fact, on the outside, the deck screens should always be removed on all cars undergoing general paint shop treatment.

Next, we will take the dining car for general painting, which should have all trimmings removed, but they were not. This was a first class car, and was finished accordingly. Inside, water rubbed and polished after car was finished in this manner; then locks, hinges, window guards, rails, etc., were taken off, polished, lacquered and replaced. The result was that finger prints and smeared places were all over the car after all care possible was to finish the car properly. After all this trouble, the appearance of the inside finish was injured, all because their part of the work was not done at the proper time. Next, a day coach for what we would term as light repairs, where the outside of the car is touched up, cut in and varnished, and the interior touched up and renovated. It is not necessary to remove any of the trimmings, except, perhaps the hat racks and steam pipe shields. The cinder deflectors and deck screens should be removed, if time will permit. I wish to make special mention about deck sash and screens. These two items are the most important parts of the trimmings, and should be carefully inspected, and also taken out each time the car is placed in shop for general paint shop treatment. If the sash are not taken out, the carpenter can't see to his part of the work, as it should be. The painter can't even clean them as should be, either on the outside, or the edge, and if not properly cleaned and varnished, they will certainly not look as they should, and will remain this way until such time will permit to have all varnish removed. To show the necessity of having these sash removed, and at the proper time, we will call attention to car placed in paint shop with sash left in car. The painter for his convenience removed sash and found nearly all sash bolts loose. About five of these sash were returned to the carpenter for repairs; in fact, the tenants on one end of two of these sash were entirely decayed and while in carpenter shop this was discovered by some of the men and large nails were used in place of the tenants and, after all, it was necessary to make two new sash, which should have been done before being sent to paint shop. Special watch should be taken of the deck sash and screens on still equipment.

Cinders will accumulate behind the screens, and become wet by the rains and, if not removed, the top part of lower roof and deck will soon commence to rust and destroy not only the roof, but also the lower part of deck. Next, the smoker or combination car. This car should be treated about the same as other day coaches, only particular attention should be given to see that the steam pipe shields are removed, properly cleaned and painted, not only for appearance, but for cleanliness. This part of the trimmings usually is very dirty from spittle and tobacco users mostly. If these parts are not properly cleaned, there is danger of contracting consumption and other diseases of different kinds. I have not gone into details to mention or name the different parts of the trimmings, and do not think it necessary, as all foremen present are familiar with the trimmings used on all passenger equipments.

From an article I noticed in the Painters Magazine, and also other means, I am convinced that considerable trouble is caused by the trimmings not being removed at the proper time. This also is important and should be given some consideration. If locks, hinges, sash and blind lift, etc., are not removed and properly cleaned, will certainly mar the appearance of the car, and besides, will save some time and expense trying to keep varnish and paint off same, which is hard to get the men to do.

Trusting the above ideas will be of some benefit and, if so, will consider the time required preparing this paper well spent. Other papers have been prepared on the subject by other members of the Committee which, no doubt, will be more beneficial than the paper just read. We are here for the purpose of giving and exchanging ideas that will enable us to handle our work to the best advantage; not only for our own personal benefit, but also for the benefit of the company we represent. We owe everything to them, for they have not only furnished us free transportation for ourselves and families, but also allowed us our time while away, and furnished a substitute during our absence.

Respectfully submitted,

J. W. FRYER, Sr.,
N. C. & St. L. Rwy.

MR. BUTTS: I do not think a car should go through the shops without removing the deck sash and screens, and having them thoroughly painted. There is where the corrosion begins on a passenger car, because of the lodging of cinders behind the screens and the moisture gathering there. The time is coming when the car builders will realize that steel cars should not be built with screens on the decks. Some of the later cars have no screens. There is no need of screens if the car has the proper ventilators, and getting rid of the old cars with improper ventilators will remove the great cause of trouble along this line, for then

there will be no place for cinders to lodge. As to the interior trimmings, etc., that depends largely upon the class of repairs the car gets. If it is to be thoroughly repainted on the inside, it is economy to remove the trimmings; otherwise it is not necessary. It is our practice to remove fixtures of all kinds on all cars where they get a thorough repainting and revarnishing. We scarcely ever let a car go through the shop a second time without taking out all the sash.

MR. QUEST: I should like to go on record as saying that the car should not go through the shop and the sash should not be revarnished without being removed.

MR. YOUNGER: The lower sash should come out of the car when it is going through the shop, no matter for what class of repairs. The upper rail is always dirty, and the water runs down, and I believe every time the car goes through, no matter what the class of repairs, it should have the trimmings taken out.

Ft. Wayne, Ind., Oct. 25, 1915.

Mr. W. A. Buchanan,

Chairman Committee on Locomotive Tenders and Cabs, both Interior and Exterior.

Dear Sir and Brother:—

In expressing my views from a practical standpoint considering the present day Railway Locomotive Shops.

Submission of treatment herewith.

Exterior Body of Freight Tenders New or Old.

First—Remove all scale rust and old paint with emery, sand blast or other means adapted for this practice and apply one coat of primer.

Second—Glaze or knifing process.

Third—Necessary coats of rough stuff or surfacer.

Fourth—Rub down and apply two (2) coats of Locomotive Finish.

Fifth—Letter and striping if customary and apply one coat of varnish.

Note—The passenger tenders to be treated in the same manner, except the striping and lettering to be done in gold and given two (2) coats of varnish.

Interior of New Tenders.

Apply one coat of Mineral Brown mixed with Linseed Oil.

Interior Body of New Cabs, Passenger or Freight.

Apply one coat of primer, putty holes and apply two (2) coats of standard enamel.

Interior Body of Old Cabs, Passenger or Freight.

Clean and apply two (2) coats of standard enamel.

E. L. YOUNGER

SECOND VICE-PRESIDENT

Exterior Body of Freight Cabs, New or Old.

First—Remove old paint, sandpaper and apply one (1) coat of primer.

Second—Putty, glaze or knifing process.

Third—Necessary coats of rough stuff or surfacer.

Fourth—Rub down and apply two (2) coats of Locomotive Finish.

Fifth—Number and stripe, if customary, and apply one (1) coat of varnish.

Note—The exterior of passenger cabs, new or old, to be treated in the same manner, except the striping and numbering to be done in gold and given two (2) coats of varnish.

Yours truly,

G. E. GRAHAM, Foreman.

Danville, Ill., Nov., 1916.

Mr. W. A. Buchanan,

Chairman Committee on Painting Locomotive Cabs and Tenders, both Exterior and Interior.

Dear Sir:—

The proper method of painting locomotives, tenders, cabs, etc., has been assigned to me. In giving my views, I will be brief as the subjects to follow will possibly be more interesting and more benefit will be derived from them.

Locomotive painting is one of the important duties of the railway paint shop. The older employes of the paint department have seen individual names, the bright colors, shaded letters, numbers and stripes all disappear until now very little pencil work, except letters and numbers, are placed on the locomotive. But this is history.

I believe the members of this Association will agree with me that the paint shop is not complete without an up-to-date sand blast. Corrosion of metal is one of the greatest subjects, and utmost care should be taken to seal metal with a good elastic metal primer before it has been exposed to moisture.

I may state that the ways to do a give piece of work, say the locomotive and its accessory parts, are as numerous as there are different minds to superintend.

First—New work or burnt off, sand blasted, which is the equivalent. Remove all rust and loose material, prime with some elastic primer for metal or wood, as the case may be.

Second—Coat surfacer.

Third—Putty. Glaze and level up surface.

Fourth—Coat surfacer.

Fifth—Coat surfacer.

Sixth—Coat surfacer.

Seventh—Guide coat.

Eighth—Rub.

Ninth—Color letter and number.

Tenth—Coat engine varnish finishing if plenty of time, if not 1-2 rubbing varnish and 1-2 engine finish varnish.

Eleventh—Coat engine finishing varnish, allowing usual time to dry.

Old Work Where Paint Is in Fair Condition.

Clean all dirt, grease and loose paint off, remove rust if any. Touch up or coat all over, as the condition warrants. Putty, if work is in bad condition. We put one coat rubbing glaze on, then rub. In this way, work goes out looking as if new. Cracks may show up later, but not in all cases. Doing work in this way, we do not use guide coat, as old paint is sufficient. This is for cabs, tenders, steam domes, sand boxes and number plates.

New cabs inside are given one coat primer, one coat flat green, one coat enamel.

Jackets are primed when new. When old, one coat surfacer. In all cases we put black varnish on jackets and all parts below running boards, except frames and pipes, which are coated with asphaltum.

We paint boilers inside and out with mineral paint, also coal space and top and bottom of tenders. We whitewash engine frames to locate cracks before painting.

Cab roofs are painted before canvas is put on, then three coats canvas roof composition.

C. A. GILDERSLEEVE,
C. & E. I. R. R., Danville, Ill.

Rocky Mount, N. C., Nov. 8, 1915.

Mr. W. A. Buchanan, Chairman,
Lackawanna Railroad Co.,
Buffalo, New York.

Dear Sir:—

Referring to your letter of Oct. 14, 1915, subject, "Locomotive Cabs and Tanks," beg to advise that our practice for painting locomotive cabs and tanks is as follows:

For new work on cabs outside, we prime cabs with lead primer, then apply three or four coats of some good surfacer, rub down with pumice stone, apply one coat of engine finishing enamel black and one coat of engine finishing varnish, except cab panels, which we give one coat of flat black, letter and apply two coats of varnish over same.

Inside of Cabs.—We prime inside of cab with one coat of oil primer, color green, putty and apply one coat of color and varnish, green. Note: The reason we do not use the enamel black on our cab panels is that it causes the lettering to crack and we would have to wait a consider-

able length of time for same to dry before lettering. We find by using the flat black that we can save time by lettering the same day and, if necessary, varnish and complete the job the same day. This method, of course, we use on quick jobs.

Painting Outside of Tenders—New Work.—When necessary to remove paint, we use the sand blast. When convenient to do so, we find this the best method of removing paint. We then apply one coat of lead primer, then one coat of surfacing composition, then putty if necessary, then two or three coats of surfacer, rub down with pumice stone and sand paper, then apply one coat of flat black, letter and apply two coats of finishing varnish. We paint the bottom, coal space and deck of tank with one coat of any good metallic paint. We do not paint the interior of our tanks at present, but I think this would be a good thing to do. The reason this is not carried out, I think, is on account of being in too big a hurry to get work out of shop.

Note: When doing light repair work on our cabs and tanks when the paint is in fairly good condition, we simply wash off with soap and water and putty and sandpaper when necessary, then cut in with flat black when lettering is to be done, touch up letters and apply one or two coats of engine finishing varnish.

I am sending you this information at an early date to help you dispatch this work as much as possible. Please advise if this information is in line with what you desire, also if there is any other information that I can furnish I will gladly do so. As this is my first committee work, I did not know exactly what was needed.

Yours truly,

W. F. JAMES.

MR. BIGELOW: It is necessary to take out the trimmings, particularly from the steel cars, not so much so with the wooden cars, but the steel cars require inspection of the sash runs. It is impossible to see the condition they are in, whether worn through and filled with rust, or whether filled with cement formed by dust and moisture, a condition we find existing in some cases. The dust works its way around the sash, and is so very fine that when mixed with water it becomes a cement, and that attacks the metal, and a wooden sash with that cement on it will rust itself fast to the metal. For instance, the end sash is very seldom raised, and we have taken those out and got as high as a teacupful of that cement scraped off the steel and off the edge of the sash, badly rusted in spite of the paint originally put on. The interior trimmings, such as hat racks, are a nuisance to a man trying even to wash a car with them in. They add to the work, and destroy the appearance of the coat of varnish that may be applied. A large amount of the smaller trimmings that are fastened

to the side of the car might be left on where the trimmings are painted, and if we can keep all the holes closed by leaving the trimmings in, we will keep the moisture from running on to the back side of our interior finish. In washing the car, where small trimmings have been removed, the insulating material will soak up the water and remain wet for months. A little study of the condition of a car will determine how much of the trimming should be removed, but in any event all sash should be removed.

MR. BUTTS: I am in favor of taking all sash out of steel equipment, but with the old style of cars with wooden sash we frequently leave them in over one shopping, and I have seen no evil effects from that. But of course if that were kept up, we would soon get such an accumulation of varnish in the runs that we couldn't raise the sash.

MR. BREESE: I believe in shopping a car, in the case of any car that is varnished at all on the exterior, the sash should be removed. Otherwise you cannot get a clean job of varnishing. After a car has been scrubbed and has once gotten dry, you pick up too much dust there with a varnish brush, and I think all sash should be removed whenever a car is cut in and has to be varnished.

MR. COOK: I would like to offer this resolution, that it is the sense of this Association that all interior trimmings be removed from passenger equipment going through the shop for class repairs. That doesn't mean that it is absolutely ironclad.

(Seconded by Mr. Houser, and carried.)

THE PRESIDENT: We will now take up Subject No. 2, "Headlinings painted white or very light shades, how should they be treated, and should they be varnished?" The first paper will be by Mr. Theodore Himburg.

Subject No. 2—HEADLININGS PAINTED WHITE OR IN VERY LIGHT SHADES—HOW SHOULD THEY BE TREATED, AND SHOULD THEY BE VARNISHED?

Mr. President, and fellow members: I will attempt to interpret the above subject in as brief a manner as possible. While I have experimented to some extent with building up new and repainting old headlinings over old paint, changing the colors from dark to light shades, also using flat color and enamel or varnish color alike, will say that good results can be obtained with either flat color or varnish color. I always finish a varnish color or enameled surface with at least one coat of pale headlining varnish, while two coats of varnish are applied over flat color.

Several years ago I finished up one headlining with enamel and let it go without varnishing. The color was

changed from a light green to a dark ivory by applying one coat of flat color, using plenty of varnish as a binder. After the usual method of puttying and sandpapering, a coat of semi-enamel, which dried with very little gloss, was applied. This was followed up with a coat of varnish color which dried with a good gloss. Striping and ornamenting were omitted. This car was shopped again in fifteen months, and after headlining was washed I found that it would not pass with varnishing alone but had to be repainted and varnished, on account of not having withstood the several washings always necessary between shopping periods. I brought up several other headlinings in the same way, except that I finished them with one coat of varnish, and from this method good service was obtained, except that it did not have a very smooth finish.

Just recently it was necessary to place a new agasote headlining in one of our steel coaches. I washed this headlining with gasoline to remove the grease spots and primed it with a lead primer, the vehicle being one-third boiled linseed oil and two-thirds turpentine. This was puttied the following day and after priming coat stood forty-eight hours, was sandpapered and three coats of flat lead sanded between coats and tinted to an ivory shade was applied. I might add the last coat was not entirely flat, the liquid being one-third rubbing varnish and two-thirds turpentine, in order to get a smoother surface for the striping and ornamenting. Then two coats of clear elastic varnish were applied. I avoid repeating with the second coat of varnish the following day when it is possible to do so, but the powers that be will not always permit this.

For ornamenting, I prefer a plain gold line about 3-16-inch without corner-piece of any kind. I have rubbed no linings during the past several years. In building up a new headlining surface, if the material is wood veneer, I follow the same method or system of lead priming and flat coating mentioned above, except that I knife in one or more times if necessary before flat coats are applied.

No doubt most of us have been requested by the management to increase our output, and in order to decrease the shopping period of each car shopped for paint, and in order to economize on account of the increased market prices in paints and paint materials, we have resorted to the varnish color method which is a cheaper way of doing work. When completed it also has the appearance of a cheaper job. I use the flat color and clear varnish system because I have always been fortunate enough to have superiors who insist on quality and something that is pleasing to the eye, as well as quantity.

I might continue giving you more of my experiences in bringing up a surface with patent materials, a number of

good ones being on the market, but you are all as much or more familiar with these systems as myself.

Respectfully submitted,

THEO HIMBURG,
M. P.-D. & R. G., Denver, Colo.

THE PRESIDENT: Mr. Swing is not present, and we will have Mr. Bowers' paper next.

Kent, Ohio, August 28, 1916.

To the President and Members of the Master Car and Locomotive Painters Association.

Gentlemen:

It affords me great pleasure, I assure you, to be called upon to serve one of the committee on Subject No. 2, namely, "Headlinings painted white or light shades, how should they be treated and should they be varnished."

There are very likely different opinions on this very important subject, as to headlining painting, and as to methods, colors and protection of same, for the many railroads have different ideas and views on this subject.

The Erie R. R., whom I am employed by, in former years had all wood and pulp headlinings of their first class, through line coaches painted white in flat colors, striped and ornamented in gold, then edged in black and two coats of transparent varnish applied. Afterwards, when dry, rubbed with pumice stone and water and polished with oil, leaving an eggshell gloss, which finish was attractive and gave the interior of coach a cheerful appearance.

When coaches came in paint shop at next two or three shoppings the lining was scrubbed as rest of coach and then repolished with oil. In some cases, especially the panels of the lining where the gas lamps are situated, which were some colored by the heat of the lamps, we cut the stripes and ornamentations in with the former white flat color and finished same as in former occasions, when headlining was last painted.

Conditions since then have changed and simpler and less expensive methods have been adopted. A great percentage of the former decorations are in part and in some cases wholly eliminated, especially the latter, on second and third class coaches.

There are a few roads that still adhere to headlinings being painted white, but many of them changed to different shades of green, terra cotta, salmon, blue, etc., which, with some decorations and a varnish finish, to my judgment gives the same an equally attractive appearance as the white painted headlinings. While the most of railroads adhere to the varnish finish, some few have dispensed with same, applying paint in an enamel form or a color var-

nish instead, in order to eliminate varnishing of same. Also the discontinuance of striping and ornamentation.

In answering the subject and basing my judgment from an economical as well as from an artistic standpoint, I firmly believe that headlinings that are painted white or light shades should be varnished.

Respectfully,

F. W. BOWERS,
Foreman Painter Erie R. R.,
Kent, Ohio.

THE PRESIDENT: I desire at this time to appoint as a committee to draw up appropriate resolutions as to our deceased members, Messrs. Copp, Cook and Bowers.

I will appoint as a Committee on place of next meeting Messrs. Mollendorf, Burton and Houser. The Secretary has a number of invitations to submit to the committee.

We will now take up the discussion of Subject No. 2.

MR. D. C. SHERWOOD: We are painting our headlinings with light color with an enamel, and are getting very satisfactory results. We use an enamel that will cover over a dark color with two coats. It dries slowly enough to make it durable, and we find we are getting along as well with that as we would if we varnished our linings, and it is a great deal cheaper. We are striping our linings with an enameled stripe which we can wash when the car is shopped.

MR. HIMBURG: How long has the work been in service?

MR. SHERWOOD: We have cars that have been out two years, and in some the lining has been in and been washed possibly three times. It is what we call a near cleaning; the lining is just washed and sent back on the road again.

MR. HIMBURG: When the car is shopped the next time, will it stand a good hard washing?

MR. SHERWOOD: We haven't had to paint it every time.

MR. BUTTS: About two years ago we went back from dark bronze lining to very light. We originally had pure white, but finally decided on French gray, very light, just a little off of white. I had very little faith in the durability of a varnish color for a headlining. There was a varnish color offered us that they made great claims for, and we put out some test linings. After two years this car had been cleaned three times at terminals with soap and water, and the car came into the shop and was recleaned, and was fit to go out without paint. The brilliant gloss was somewhat dim, but on first class work we rub many of our linings, and that doesn't make much difference. I have never before seen a varnish color that would stand the test

this has. I am satisfied we have a material that will give a better looking lining in every respect than we ever got with varnish, and it is more durable.

THE PRESIDENT: You have many cars painted in light color and decorated in gold. How about the gold?

MR. BUTTS: We have abandoned gold stripes on everything but special cars, dining cars, some cafe cars, and private cars. There we have flatted them and varnished them. It is impractical to put a gold stripe onto a varnish color, that is made of varnish durable and elastic enough to stand it. I never could put a size onto an elastic surface, as elastic as a finishing varnish should be, and get the durability. Your gold will crack invariably. We have gone to a color stripe on our light lining.

MR. HIMBURG: Our people want gold on almost everything.

MR. BUTTS: Then you will have to flat your varnish.

MR. MILLER: How often are the headlinings in those cars cleaned at terminals, and what is the metnod employed?

MR. BUTTS: They usually get two and sometimes four cleanings during their period in service of about fourteen to eighteen months.

MR. MILLER: What kind of cleaning?

MR. BUTTS: With soap and water, what is commonly called varnish cleaning soap, or linseed oil soap.

MR. MILLER: If the cleaning is not too drastic, you get the same results from a semi-flat color, something with an eggshell gloss. We have done it more than once when we didn't have time to do it in any other way.

MR. BUTTS: Yes, but usually you find you have to repaint.

MR. KEIL: I would like to ask Mr. Sherwood if that cleaning with the soap cleaner is all the car gets, or do you go over it with an oil cleaner, the same as the rest of the car, afterwards?

MR. SHERWOOD: That would depend on the job you wanted to do. If you want to put a little gloss on, oil it off with a renovator. If not, let it go flat. As a rule, when the car comes through for regular shopping and we don't paint the headlining over, we oil it with a renovator and wipe it off well, the same as we do the rest of the body of the car. As to painting the headlinings every time they come in, we do not have to paint them any oftener with the enamel than if we painted and varnished them, using flat colors, because the light lining becomes grimy inside of five or six years, and you must paint it.

MR. BROWN: This may not be practicable, but sometimes you can get hold of things by going entirely outside of your regular practice. I read a while ago that they are using wallpaper for the interior of some dining cars. At

the advance showing of wallpapers for 1917 I saw two things it might be worth while to experiment with. One of the large wallpaper companies is putting out a material for bathrooms and similar places. It comes in eighteen inches, with slightly beveled surface and is varnished. You can take a piece of that paper, crumple it in your hand, unfold it again and it shows no wrinkles. You could put that on cheaper than you could paint. A test was made by holding a piece of this paper up against the wall, and allowing one of the scrubwomen to scrub it with sapolio, and it showed no signs of the action of the sapolio upon it. If it will do that, it should stand the wear and tear of an ordinary cleaning two or three times, and then you can take it off and put some more on. Another concern is putting out a 36-inch wide paper with a surface closely resembling a white enameled surface, in that it is a white enamel paper. They can make it in other light colors. It can be wiped off with a wet sponge. It has been tested out in a bathroom at the works of the company for a year, where it has been constantly splashed and given all sorts of rough treatment, without any sign of injuring the enameled surface. Why can't you go out of the ordinary line and try some experiments along that line? If they can paper the interiors of dining cars, why can't they paper the interior roofs of ordinary cars, and why wouldn't it be cheaper to repaper the lining? You could paper it over canvas if you desired.

MR. COPP: We will be hiring paperhangers instead of painters soon. However, I believe in testing out everything. Our practice is to paint headlinings in flat colors, and finish them with two coats of varnish. We are trying out an enamel method, and have finished six or eight cars, and I am inclined to think there is something in it. We abandoned striping headlinings during the past year, except in dining cars, private cars and special cars.

MR. GEARHART: One of our men was sent to Chicago to see a dining car that was papered. I think it was on the Burlington. Our dining cars are striped, and we have to protect that stripe by varnish. We give it two coats of pale varnish, and we have been cleaning them several times when they come in for class repairs. Of course they get terminal cleanings between shopping seasons. Some have gone through twice for shop repairs, and we cleaned them all right. We give them a coat every time they get class repairs. We do not scrub them, but give them a coat of pea green, and they look nice when they go out. We tried to clean them, but couldn't get as clean a job as we wanted, and they didn't look as fresh as the rest of the car.

MR. BUTTS: I am glad Mr. Brown said what he did, and I think he had a great deal of courage to say it in this company. I have a bathroom at home covered with paper similar to that he mentioned, and it has been on there six years, and we have scrubbed it every spring, and it looks

so well we haven't had to repaper it yet. I have thought myself that if that was put on any interior it might give good results, but I haven't been advocating that because I belong to the Master Car Painters' Association. (Laughter.)

MR. HIMBURG: I noticed some of those dining cars, and it is only a narrow strip between the tops of the windows and the turn of the lining, and I don't believe any master painter would want to put it in a first class dining car.

THE PRESIDENT: Shall we go on record as to this?

MR. GEARHART: I do not believe we can. It depends on local conditions to quite an extent.

MR. PITARD: I do not believe we could adopt any rule that would apply in all cases. Sometimes it may be expedient to put one coat of enamel on a car and let it go. I do not think we could adopt any method straight out to the exclusion of all other methods. We have had good results with both the enamel method and with varnish.

MR. GIBBONS: I would like to offer the following resolution: Resolved, that the question of varnishing light colored headlinings should be governed by the class of service the car is expected to give and the requirements of the community the railroad is serving.

MR. MOLENDORF: I think you will find the durability of this material depends a good deal on the lighting of the car. You have three classes of car, one lighted by electricity, one by gas, and one by ordinary kerosene lamps. We use a light headlining color, and I have been in the habit of varnishing all except a few, and we have tried them out in that way on three different classes of cars. We are getting a lot of cars that will be done in enamel and also striped, but the stripes will be in penciled varnished to protect the stripes. We shall have a chance to find out in a couple of years which is the best.

THE SECRETARY: I move the adoption of the resolution proposed by Mr. Gibbons.

(Seconded by Mr. Keil, and carried.)

THE SECRETARY: During the last year I received a letter from a foreman painter on a railroad in India. It is as follows:

230 Beawar Road,
Ajmere Rajputana,
India, May 5, 1916.

Dear Sir:—

I have forwarded by money order, by this week's English mail, $6.50, and shall be obliged if you will kindly acknowledge receipt by return post. Through being a sub-

scriber of the American "Painters Magazine" I became acquainted with the work and aims of your society and these finally decided me upon seeking membership.

This is in reply to your letter dated Jan. 20, 1916.

Yours truly,

R. MACDONALD.

Foreman Painter,
B. B. & C. I. R.,
Ajmere Central Shops.

I took the responsibility of admitting him. His letter afterwards is as follows:

230 Bearwar Road,
Ajmere Rajputana,
India, Aug. 17, 1916.

A. P. Dane, Esq.,

Secretary-Treasurer.

Dear sir:—

Your acknowledgment of the receipt of my m. o. sent you on May 6th with membership card enclosed reached me in due course, also the official programme of our Annual Convention which takes place next month.

Although I will be unavoidably absent, I hope to be in a position to take part in the Convention of 1917.

Meanwhile I trust that from the educational and social point of view this year's gathering of the "Knights of the Brush" and their friends will surpass the high standard of previous years.

Yours sincerely,

R. MACDONALD.

THE PRESIDENT: The next will be Query No. 2, "How does the hot water and oil method of cleaning locomotives at round houses affect the painted parts?" Mr. Buchanan will open the discussion.

MR. BUCHANAN: I have nothing whatever to do with the round house cleaning of locomotives. I have, however, noted some facts, and bring them to you.

In reply to query No. 2, "How does hot water and oil method of cleaning locomotives at round houses affect the painted parts."

In the first place, allow me to correct a mistaken idea regarding the use of hot water. The temperature of water used is about 90 degrees F. H. By the time it reaches the surface to be cleaned, it has reduced to 70 degrees or less, and by reason of the construction of the nozzle it is discharged from, it reaches the surface in the form of a spray instead of a solid stream.

After two years of continued use at East Buffalo Round House, we have failed to discover any case where it has in

any way scalded the varnish in the least. There is, however, some indications of wear from friction.

The whole system is like any other process of work; it must be used properly, and for that reason we have a man in charge who inspects all engines cleaned. The results obtained since its installation are reasonably satisfactory. It has reduced the cost of cleaning engines from a total of $1.25 per engine, old method, to about 35c per engine, new method, and instead of only cleaning 25% of the power each day, we find that at least 80% of them reach the inside of the round house free from dirt.

In addition to the points covered as to cost and methods, much more can be said relative to the merits of this cleaning device on the lines of safety and better operation of power thus handled.

The thoroughness of this cleaning process makes more visible for inspection of defective parts of the locomotive that otherwise would not be discovered and reported by engine or tank inspector due to parts being heavily coated with grease.

We find from our experience the springs and spring rigging receive a certain amount of spray lubrication which is a life-prolonging feature never given a thought until this device was put to use.

We have never traced a hot box condition to locomotive or tenders due to washing engines and during that time we have washed on the Buffalo division over 100,000 locomotives.

The interior of the engine cab is given a bath every fifteen days, or oftener if required. The oil holes on motion work are kept free from grit, cinders and gummy substances that plug and retard lubrication.

Another good point in favor of the washing system is the clean condition locomotives come to engine houses for work and attention. The workmen are not required to clean up locomotive parts with their clothing by coming in contact with dirt and grease-coated parts of machinery and more rapid repairs can be made with better feeling all around.

I am informed that the federal inspectors have given very favorable comment of it and are recommending its use to railroads in general.

W. A. BUCHANAN,
D., L. & W. R. R.,
Buffalo, N. Y.

MR. BURTON: We in the South who work colored help have a great deal of trouble in keeping help for cleaning locomotives. We are installing a plant such as mentioned in the paper, and I have been asked whether or not the hot water and steam would hurt the paint. Without having

time to give it a thorough test, I answered that in my opinion it would not, and I am glad Mr. Buchanan has tested it out sufficiently to bear me out in my opinion. I believe it will be a saving in the cost of cleaning engines. The trouble we fear is in scalding somebody. Personal injuries on our road are terrible things, and we are doing our best to try not to hurt anybody. If we install this plant, we must be careful to see that we do not increase the personal injuries, but I think this is the coming way to clean engines.

MR. BUSH: We have used Mr. Buchanan's method for two years with very gratifying results with the apparatus satisfactorily installed. At first we had some trouble in getting the proper mixture; we had either too much steam, too much water or too much oil. Now it gives us good results, and I never saw our equipment look as good as it does now.

MR. F. W. WRIGHT (M. C. R. R.): We have been using this method for some time, and there is much in its favor as regards economy, but there are some things against it. I think it is adapted for the running parts, but for varnished surfaces I do not think it gives good results. We can treat only one-third of the number in the old way; this new plan is economical, but much caution must be used, there must not be too much force and not too much oil, or it may leave it cloudy.

MR. GIBBONS: I believe in keeping our locomotives as clean as any other part of the train. Mr. Buchanan said that the spray lubricated certain parts of the running equipment, which was very advantageous. That is true, but if it lubricates those parts and leaves oil in there, on the springs and other places that need oil, doesn't it also prove that that spray leaves oil on the varnished surfaces, and you know that if you leave oil there, if you have a dusty roadbed, it accumulates that dust rapidly, the dust dries into the oil and makes a gum that is practically irremovable. I agree with Mr. Wright when he says that for the running parts it is advantageous, but cannot conceive of conditions that would make it of value in cleaning the varnished surfaces of cabs, domes, jackets or tanks. As to the cost, let us analyze that. $1.25 per engine, and they clean only 25% of the engines under that system; 75% of the engine was cleaned at a nominal cost of say 40 cents. So there seems little saving in the end. I believe that a piece of dry waste on varnished surfaces, removing the dust and accumulations, will do it as quickly as a spray can be sprayed over that surface, and that dry waste will not put anything on there that will adhere to the tank and catch dust or dirt. We put oil and water on by hand and thoroughly wiped it off. What was the result? We had to revarnish our engines every three months to keep them looking decent. Two years ago I was requested to get up a standard book of instructions to handle that, and the cost of the maintenance of the

paint on our locomotives has been reduced one-third, and they look 100% better. I talked with Mr. Buchanan, and the question came up as to how they handled the repainting of these surfaces that had that oil accumulation in the cracks and crevices, and had dried there. Their system was to sandpaper that down and give it a coat of size over it, and then the color or whatever was necessary, and go ahead. We know that is not beneficial to the paint or to the surface, and the varnish applied over that would have only a temporary brilliancy. As far as cleaning trucks, running guards, etc., is concerned, I can see that it would be of great value to the railroad companies, but I do not concede that it is a good plan in connection with the varnished surfaces.

MR. BUCHANAN: The device was never in the first place ever intended for any other purpose except cleaning below the running board.

MR. MILLER: If this appliance is not used correctly, it is a source of great annoyance, for it obscures the lettering. A film is caused to form on the cabs and tenders. That is due, however, to the apparatus being incorrectly handled, and an excess of oil used. Recently we have found it practicable to occasionally give the passenger locomotives a wiping with waste, and they go ahead again and are cleaned with the regular method of spraying. It is a splendid thing underneath the running board, but might be criticised when used on the surfaced portions of the locomotives, but with a little dry wiping occasionally I think those objections would be overcome.

MR. CARTER: While we use this hot water proposition, from our experience you might as well pour water on a duck's back. Twenty-five years ago paint would last from eighteen months to two years, and we revarnished. Today when we use the hot water, it spoils the varnish, and we must do the engines over new at every shopping. Our cost is estimated at $40 a shopping on an average, but the dry wiping of a locomotive takes the dust away from it, and I think that is superior to the washing. The same way with our cleaners. Any material placed on a locomotive that is strong enough to remove dirt is strong enough to injure your varnish or your paint, if you don't get it off. Clean your surface, put on your material that is there for cleaning and preserving, wipe it thoroughly, and you have everything that you want. The wiping, in my opinion, is superior to all of your washes.

MR. GLASS: I do not have anything to do with the cleaning, but about a year ago we used this system of cleaning engines. At first I was opposed to it, because I thought, and think yet, that it is injurious to the varnish and destroys the luster. Then the oil that remains on catches the dirt. First they used oil and water; now they use soap, which I consider still worse. I have watched it close during the

past year, and I notice that the engines that had common white color are losing the luster from the varnish. We only spray the frame, drivers and trucks, but the fumes go over the tank and cab, with the result I have stated. When we get any of those engines to repaint, you know it is difficult to clean off the grease for revarnishing, and I have discovered it costs twice as much now to clean them up as heretofore. I think it is detrimental to the varnish and paint to use this.

MR. JAMES: We have used this for two years, and have gotten good results with the running parts, but found it practically a failure on the upper structure, because the oil clogs and catches the dust, and it costs more to clean it off. We clean our cisterns with dry waste at a piecework price of seven cents apiece. When the tank gets very dirty, we clean it with acid solution, and then renovate it, and get better results than from hot water and oil.

MR. BREESE: We used this system for three years, and obtained poor results in the start on tenders and cabs. But since that we have two men, one with a soap spray and another with a car washer brush and a hose on that, to follow up and go over the cabs, tenders and all varnished parts, and since that we have had no complaint or bad results. If you do a good job of rinsing we find it destroys that film on there, and you have no trouble.

MR. BUSH: At first we experienced this trouble you men describe, but it is in the proper installing and proper mixture, and you will be surprised at the little accumulation on those tanks from day to day.

MR. GLASS: Our spray has worked all right, but you cannot prevent the fumes from it getting on these other parts

MR. QUEST: We have one of those plants, and we have found that the spray system does obscure our paint. It becomes hard, the dust becomes imbedded in it. Our engines are not looking as good as they used to, and I attribute it to the spray system. I admit that for cleaning the machine parts it is fine. Another thing, take an old wooden cab, a cab constructed in the old panel system, which becomes more or less open as it grows old, we found that the water worked back in there and we had blisters. They tried to fasten the blame on the paintshop, but we wouldn't stand it. I had to tell my superior that if he wanted to avoid that, he would have to have another style of cab. I promised them previous to the February meeting of the Advisory Board that I would have this subject listed, and I am glad I did, because he can read now what other people think of the system. I think it is a good thing for the machinery parts, but a bad thing for the paint.

MR. KEIL: We had the system prior to six months ago, and I am of the same opinion with Mr. Breese and

had the same experience. The greatest trouble is with the brown deposits left on the surface; that is a clay substance in the oil, and there is nothing that will dissovle that. It will dissolve your varnish before it takes that off, and it increases the cost of reshopping. I was obliged for the first time in my experience to do work in the round house; every first class locomotive was repainted and cleaned in the round house, a good clean place. They were taken out of the service for three or four days, and I had to paint those passenger engines over before they were ready for what is called a general shopping, on account of their dirty condition. We have abolished the crude oil system. All of those oils, no matters what you call them, have a crude oil, and nothing will take that off except a reshopping and repainting.

MR. GIBBONS: I move that it is the sense of this meeting that the hot water and oil method of cleaning locomotives, according to the experience of those who have used it, has been advantageous for the cleaning of the running gear of the locomotive, but it has been detrimental to the paint and varnished surfaces on the tank, cab, domes, jackets, etc.

(Seconded by Mr. Breese, and carried.)

THE PRESIDENT: We will next have the essay of Mr. Gibbons on "This Association's views of the volume of railway legislation in the effect upon the business of the country."

THIS ASSOCIATION'S VIEWS OF THE VOLUME OF RAILWAY LEGISLATION IN ITS EFFECT ON THE BUSINESS OF THE COUNTRY.

In the following article the writer has endeavored to illustrate some of the effects that the vast volume of railway legislation has had upon the general business of the country, from the viewpoint of a class of railroad employees who are vitally interested in the welfare of the nation and the several communities in which they live and who recognize the fact that the general scheme of railway legislation is not only just, but is as necessary as the "Blue Sky Laws" passed by several states to protect the unsophisticated investors from the machinations of the dishonest promoter, laws that protect the public from discrimination, also protect the railroads from the demands for rebates made by "Big Business" and have injured no legitimate business but have accentuated the value to the country and taught the people to appreciate the services of real railroad builders, like James J Hill and Edward P. Ripley.

Many of the men who have advocated stringent regulation of the railroads are honest and have given expression to their conviction after careful consideration of the question, but a certain class of politicians who are ever ready to

influence the minds of the people with the hope that they may ride into power on the wave of discontent they help to create, took advantage of the state of political unrest that prevails in our country, magnified the real grievance and multiplied the imaginary ones until some of the people thought the panacea of all their social and political ills was the confiscation or annihilation of the railroad companies. The multiplicity of the rate making and regulating commissions, the ignorance of some of them of the fundamental principles of railroad business, the clamorous cry of the demagogue, the selfish demands of near-sighted shippers, all had a tendency to create distrust in the minds of the investor as to the security of funds invested in railway stocks and bonds and made it impossible to obtain the money necessary to make extensions or purchase equipment to take care of the natural growth of the business in the territory which they served.

The first to feel the disturbed condition of railroad business was the railway employees, then the retail merchants, whose customers could not meet their bills, next the wholesale houses and finally the manufacturer and producers. The following statistics compiled from the Railway Age Gazette will give an idea of the great loss suffered by the country in a few of the industries depending upon the railroads for their business.

For the purpose of this paper, the year 1905, 1906 and 1907 will be compared to 1913, 1914 and 1915, because the first period represents the three years just prior to the opening of the anti-railroad agitation and the last three years represent the period in which it reached its climax and began to recede and also because they are the years wherein we can secure figures that come nearer being comparative than any other, but in this, we give the advantage to the last period because the figures obtainable only give the output of manufacturing plants of the United States and Canada during 1905, 1906 and 1907, while for the years 1913, 1914 and 1915 they include all equipment built in railway shops as well as the manufacturing plants. In approximating the cost we have obtained figures from some of the railroads who have purchased equipment during both of the periods given.

Freight Equipment Built.

Year	No. of Cars	Year	No. of Cars
1905	165,155	1913	207,684
1906	240,503	1914	104,541
1907	284,188	1915	74,112
Total	689,846	Total	386,337

As refrigerator, furniture, box, stock, gondola, flat and tank cars cost from $800.00 to $1,975.00, the average of $1,100.00 per car is conservative, thus the cost of freight equipment purchased would be:

In 1905, 1906 and 1907	$758,830,600.00
In 1913, 1914 and 1915	424,970,700.00
Loss in this class of business	$333,859,900.00

Passenger Train Cars Built.

Year	No. of Cars	Year	No. of Cars
1905	2,551	1913	3,296
1906	3,167	1914	3,691
1907	5,457	1915	1,949
Total	11,175	Total	8,936

As the cost of baggage and mail cars runs from $7,000.00 to $9,000.00, coaches and chair cars from $10,000.00 to $14,000.00, composite and diners from $16,000.00 to $23,000.00, a fair average per car would be $11,500.00. Thus the cost of passenger train cars built would be as follows:

In 1905, 1906 and 1907	$1,285,125.00
In 1913, 1914 and 1915	927,640.00
Loss on passenger equipment	$357,485.00

This in face of the fact that the Transcontinental Lines were compelled to order new equipment in order to take care of the anticipated business incident to the Great World's Fairs given in San Francisco and San Diego, California, in 1915 to commemorate the opening of the Panama Canal.

Locomotives Built.

Year	Number	Year	Number
1905	5,491	1913	5,332
1906	6,952	1914	2,235
1907	7,362	1915	2,085
Total	19,805	Total	9,652

The cost of smaller type of engines runs from $12,000.00 to $16,000.00, consolidated, Mikado, Santa Fe, Atlantic & Pacific type from $20,000.00 to $29,000.00, Mallet type from $32,000.00 to $38,000.00. A conservative average cost would be $21,000.00, thus the cost of locomotives built would be as follows:

In 1905, 1906 and 1907	$415,515,000.00
In 1913, 1914 and 1915	202,519,000.00
Loss on this class of business	$212,996,000.00

Total loss of trade to the country on these three items alone would be $547,213,385.00.

When we consider that in 1905, 1906 and up to September, 1907, all the railroad shops of the country were working full time with a large force of men, and in 1913, 1914 and first half of 1915 many of the railroad shops were practically closed down for months at a time and all departments working short time.

The purchase of all other supplies reduced to the minimum and the fact that in the last three years only 5536 miles of new railroad extensions were built as against 15,223 miles in the years 1905, 1906 and 1907, that on June 30, 1907, there were 1,672,074 employes, while on the same date in 1915 there were only 1,567,700 railroad employes in the United States. A very low estimate of the direct business loss to the country in purchases and wages to employes has averaged $500,000,000.00 a year or a total of one and one-half billions of dollars in the three years. Oh, what a costly war!

In spite of the increased mileage and the natural growth of the business of the country, 104,374 men were deprived of the positions that they had on the railroads in 1907. In spite of the great saving this appears to be on its face for the railroads, at the close of the year 1915 there were 20,143 miles of railroads in the hands of receivers as against 317 at the close of the year 1907, and yet, during this period of depression upon railroads, our country has been blessed with good crops, the foreign wars have created an unusual demand for the products of our farms, mines and factories, prices have soared and the expense of operation has increased. The railroads have used up all their available material, their equipment and track has been worked to the limit and must be renewed if the business of the country is to be handled properly.

The indirect loss to the country is immeasurable. Owing to the lack of funds to purchase equipment and build terminal facilities, many of our lines have become blockaded in the last six months, due to the rush of war munitions to the east. In the west the loss of the country left undeveloped can be partially appreciated by a perusal of the following items clipped from the Topeka Daily State Journal:

"Osborne, Kans., March 4, 1916.—On account of poor facilities for transportation in the past farmers from other sections of the state have fought shy of Osborne County. Since work has started on the Salina-Northern, the land business of this country has taken a jump. Eight of the largest farms have been sold recently and many more sales are pending. One of the largest deals made was the sale of farm by Layton Brothers to several Osborne County men for nearly $35,000.00 cash. This is more than $60.00 per acre. (Note—The writer understands that a few years ago land in Osborne County sold for $10.00 an acre.)"

"Covert, Kans., March 8, 1916.—This inland town in Osborne County has a show of getting the Salina-Northern Railroad before the close of 1916. From 1885 to 1890 the

town had several live business houses, including a newspaper. When the Union Pacific built their line from Salina to Lincoln, Plainsville and other towns started up and Covert went back. Since work commenced on the Salina-Northern, Covert has awakened up. Her people have pledged the promoters and builders all they asked. Recently a $25,000.00 school building has been completed and a charter for a bank has been applied for and they stand ready to build an elevator and put up a lumber yard." (Note—The Salina-Northern built 36 miles of track in 1915.)

How many towns and counties in our country are lying dormant or going back because of the lack of confidence of men with capital in the future ability of the railroads to pay a reasonable return on the investment?

For fifty years the policy of our government has been to levy a tariff on imports sufficient to protect the American farmer and working man from competition of the cheap labor and products of foreign countries. The degree of protection necessary has been the only difference of opinion among our statesmen.

The railway companies and their more than one and one-half million employes are not asking for a protective tariff, but are earnestly pleading for a tariff sufficient to pay a living wage to the employes and a fair interest on the money invested.

Let us hope that out of the chaos that has brought the railroads of our country to the verge of financial disaster, there will be an evolution that will place them on a firmer business basis and that the people will have a better and clearer appreciation of their work. That we are justified in this hope is evidenced by the fact that the Interstate Commerce Commission, after hearing evidence from all interested parties and carefully studying the situation from all angles, have given the railroads an increased rate on freight and passenger business. The immediate response of the weakened pulse of the business of the country to this stimulant ought to show the most obtuse politicians that the railroads serve the same function to the business body of our country as the arteries and veins do the human body and if they become diseased or congested by lack of proper nourishment, the entire physical condition of the body itself is weakened.

Many will honestly contend that railroad officials were alone to blame for the evils that brought about government regulation of the transportation companies. Be this true or false, it does not alter the fact that governmental regulation of railroad business is a permanent fixture in our country. The wise railroad officials recognize this fact and are honestly trying to comply with the orders of the various commissions under whose jurisdiction their lines may come. Knowing this to be true, the people should be fair

and employ specialists who can be depended upon to make a correct diagnosis and prescribe the proper remedy, always bearing in mind that an injury to one class is a menace to all.

JAS. W. GIBBONS,
For the Master Car & Locomotive Painters' Association of United States and Canada.

THE PRESIDENT: As the time for adjournment has come, I will entertain a motion to adjourn until tomorrow morning at nine o'clock.

MR. BURTON: I will so move.

(Seconded by Mr. Keil, and carried.)

THURSDAY SESSION.

The meeting was convened by President Hengefeld at 9.15 A. M.

MR. COOK: While many able papers are presented at our various conventions, once in a while it is our pleasure to listen to one of unusual merit, and I believe we had one of these yesterday in the essay read by Mr. Gibbons. I want, therefore, to move, Mr. President, the cordial thanks of the Association to Mr. Gibbons for his essay read yesterday.

(Seconded by Mr. Houser, and carried.)

MR. GIBBONS: On my part, I want to thank the brothers in the Convention for their kindness and appreciation. I am only too pleased at any time to try to be of service.

THE PRESIDENT: We will begin somewhat out of the regular order this morning, and will take up first Subject No. 4, "How should the shopping of passenger cars for classified repairs be handled, and by whom?" The first paper will be that of Mr. Henry Polhemus. Mr. Polhemus is somewhat indisposed this morning, and he is unable to be present. I will ask the Secretary to read the paper.

Subject No. 2—"HOW SHOULD THE SHOPPING OF PASSENGER CARS FOR CLASSIFIED REPAIRS BE HANDLED AND BY WHOM?"

Mr. President and Members of the Master Car & Locomotive Painters' Association.

Gentlemen:

This subject has often occurred to me—as to the proper method and authority for shopping cars.

The present system is bad and very poor judgment is used. Some thirty years ago, when I served my apprenticeship, the company I worked for shopped their cars after they had been in service from six to eight months for touch-

ing up and refinishing, but as time rolled by, most all roads seemed to have lost pride in the appearance of their equipment, until now there seems to be no length of time in which equipment should remain in service before it is shopped for general repairs.

At the present time, equipment is placed in service after a general shopping and after each trip it is wiped off with dry waste, sometimes dipping the waste into the oil box. This is bad practice. Continuing this practice for a year or more, rubbing the dirt into the surface, dries out all the elastic qualities. This practice being carried on so long a time, kills the life of the finish and puts the equipment in condition for shopping much sooner than necessary.

If the proper practice had been applied at the terminal to prolong the life of the finish, by using a good oil cleaner once in six months, rubbing the surface with a bead scrub brush or curled hair, removing all the dirt and wiping thoroughly with dry waste, this practice will keep the body in a more suitable condition for wiping with dry waste between the oil cleaning periods. If this practice was put in force and carried out to the letter, the shopping period would be more easily determined. Equipment taken care of in this manner would be less expensive to refinish and it would not need shopping under eighteen to twenty-four months, providing a good grade of varnish was used to finish the body. Equipment kept in this condition would need an expert to determine the shopping period owing to the good condition of the finish, but the condition and looks of most of the railway equipment of the present day needs a joint inspection consisting of an expert painter and carpenter to determine the shopping period.

Comparing the present day appearance of the equipment with that of twenty-five years ago, the shopping of equipment should be done in a systematic way by an inspector, and a painter would be preferred, using his best judgment to get the bad cars through the shop first. At the present time, the transportation department sends the cars to the shop for general repairs, regardless of their condition. Very often cars get into the shop which should remain in service from six to twelve months longer and are stripped and scrubbed before the mistake is discovered. This is poor management and it could be avoided by employing a good inspector with a saving of considerable expense to the company.

Respectfully,

H. A. POLHEMUS,

Foreman Painter, Erie R. R., Buffalo.

THE PRESIDENT: We will next have the paper of Mr. James A. Allen on this topic.

Subject No. 4—HOW SHOULD CARS BE HANDLED AND BY WHOM FOR CLASSIFIED REPAIRS?

To the Officers and Members of the Master Car and Locomotive Painters' Association.

Gentlemen:

Will say by those in a measure held responsible for the service of cars turned out of the paint shop:—that one, the master painter.

He has a complete record of the condition of the paint and varnish on all cars having gone through paint shop at various times. He is familiar with the application of paints and varnishes, also their sensitive powers.

It is true that classified repairs says "Do so and so." Outside of cars burned off this means but little, for in certain classified repairs we find that after cars have been cleaned up, to be in much worse condition than was visible to the eye when ordered into paint shop.

All cars sent to the paint shop outside of those which are to be burned off, there is more or less judgment to be exercised regardless of certain classified repairs designated to run cars through paint shop, and in some few instances, instead of undergoing light repairs, we find after car was cleaned up it was in such bad condition that it necessitated repainting over old paint.

I must mention one fact which is very common on a few roads:—that one, on new equipment. Where car is assigned to road, it is put into service and because it is new is run eighteen to twenty months and then returned to the paint shop with the idea in view of undergoing light classification repairs. We find after car has been scrubbed up, varnish was so badly deteriorated, color badly faded and cracked, while ornamentation, numbering and striping were partly removed during the process of scrubbing car.

Had this car been sent to paint shop at the expiration of eight or nine months' service, it would have been cleaned up nicely and could have been touched up and varnished at a very little expense in a few days, at the same time the roof could have been taken care of, which means absolute protection to your headlining. Car in question would then be in good condition for a long grind, and if absolutely necessary, could continue in service for thirty months and at the expiration of that period you would find car in 75% better condition than when it was returned to the paint shop after its first eighteen to twenty months' service.

You will notice for the first eighteen to twenty months' service the car in question was held out of service eight to ten days for repainting, while on the other hand, where car was handled properly, it would only have been out of service from four to six days in thirty-eight months' ser-

vice, with a gain of eight to twelve months' more service for at least 75% less money, and at the expiration of the thirty-eight months' service would still be in better condition by over 50% than its first eighteen to twenty months' service. There is a reason for this and no one could better explain it than the one at the head of your paint department.

Now the point in view is this: Who is more able to judge the condition of cars for paint shop than those who direct their painting and varnishing? He knows after a certain expiration of time the condition of cars without even seeing them, owing to his familiarity with certain surfaces, colors and varnish used in his department, quality of goods determining length of service, together with the condition under which they were put through while in paint shop. He also knows if he could call in cars at a certain period and allowed to proceed on this plan, he could keep up his equipment with less men, less track capacity and considerably less expense, and with greater ease than to have one call in cars for classified repairs who simply is governed by length of time.

All cars that shine after leaving paint shop is no indication of equal service.

J. A. ALLEN,

N. Y., N. H. & H. R. R.

THE PRESIDENT: The next will be a paper by Mr. M. L. Shaffer.

To the Officers and Members of the Master Car and Locomotive Painters' Association.

Gentlemen:

I have been assigned subject No. 4, "How should the shopping of passenger cars for classified repairs be handled, and by whom?"

The shopping of passenger car equipment should be left to the master painter in charge, inasmuch as the classifying of the equipment is governed by the condition of the paint. He is the one who must be in constant touch with the situation, making periodical inspections, and is consequently familiar with the stability of the repairs previously given to the car. Therefore, he can most efficiently judge the proper classification needed in each instance.

You have no doubt learned from past experience, in many cases where instructions have been given by some one in higher authority to give a car light repairs, when it really required better attention, with nothing more in view than to place the car in service a few days in advance of its allotted time, it might last only about six months, whereas had this work been left to the foreman painter and handled properly, the car could have remained in service from fourteen to eighteen months. Work of this character only reflects upon the ability of the master painter.

Taking into consideration the fact that no two cars are identical, anyone having only a general knowledge of how the car should be turned out is not really capable of judging the needs of same, and should, therefore, leave this part of the work to the foreman painter, in view of his having under his supervision only this one point.

Yours respectfully,
M. L. SHAFFER,
Penn. R. R., Newark, N. J.

MR. HOUSER: Possibly I have been somewhat spoiled in the matter of the handling of passenger cars. I have had the privilege of doing the classifying myself. I keep my records carefully, and I also know pretty well, without looking up the records, the condition of a coach. I have always been given this privilege of shopping the cars, and I do not know what I would do were it taken away from me. The cars are all assigned through me to the different trains.

MR. BUTTS: I do not believe there is a man in the room who doesn't agree with every statement made by these gentlemen. I think those papers have told the truth, the whole truth, and nothing but the truth. It is a great mistake to attempt to take care of passenger equipment on any other basis than actual condition of paint and varnish, and certainly no one is as well fitted to determine what the class of repairs shall be as the man who has to do the work and who is responsible for it. We are carrying out that system almost literally on our road, although not exactly in every respect. The man who inspects the cars, while a competent inspector, is not a painter. He has the duty of classifying the cars. Whenever he finds a car he is at all in doubt about, he appeals to some one of the foremen painters and gets their opinion on it, so practically the painter is classifying the work. I believe it is impossible to do it properly in any other way.

THE PRESIDENT: On our road I have sole authority in classifying the repairs. When a car comes to the shop, my word is accepted on it, and I believe that is the way it should be handled. The painter is the only man really competent to judge what class of repairs a car should receive. I have all the records in my office, and the chief clerk of the superintendent of motive power comes in and we make a list of cars to be called to the shop. We go over the situation together, and he makes a list of the cars to be called in. After they are called to the shop I am the judge as to what shall be done with them.

MR. COPP: We have a similar method, except that in each individual car there is a record of the last shopping made out in the car, and placed in a frame under glass screwed up in the toilet room, giving the date of the last shopping, how many coats of varnish, etc. That governs

largely the shopping of the car, and that system has prevailed for fifteen or twenty years with us. That governs the inspectors as to time of shopping, and if cars are sent to the shop for general repairs, for paint and varnish, it is for the paint shop to regulate the matter after they reach the shop. They are seldom if ever sent to us before they need it, and in the majority of cases they do not come often enough.

MR. TRUMAN: With us, if the superintendent of motive power finds anything wrong about a car, he consults me with regard to shopping it. So also with the master car builder. I believe I shop more cars than both of them together. We never classify the repairs on a car until it is in the shop and thoroughly inspected. They give me three or four days in which to hand in my report, and I classify the repairs myself. We keep an accurate record of the whole thing, and have had no trouble whatever.

MR. COOK: I move that it is the sense of the Association that the handling of passenger cars for class repairs be assigned to the master painter.

(Seconded by Mr. Grattan, and carried.)

THE PRESIDENT: We will next take up Subject No. 3, "From the standpoint of the railroads is it economy to purchase paints made on railroad specifications?" We will first have a paper by Mr. W. O. Quest.

Subject No. 3.—FROM THE STANDPOINT OF THE RAILROADS, IS IT ECONOMY TO PURCHASE PAINT MADE ON RAILROAD SPECIFICIATIONS?

Mr. President and Gentlemen:

In our endeavor to satisfactorily introduce the above live subject as a debatable matter before the 47th annual meeting in convention of our old time-honored Association, we will first say that our expressed viewpoints on the matter of purchasing railway paint stock will be taken exclusively from our past practical experience as a railroad car and locomotive painter, also on a past observation, which personally approves of our position where claiming that 90% of the best railroad shop paints are specialty paints, undoubted specialty paints in every sense of the meaning, regardless of who makes, buys, sells or the price sold at, which, if true, would make the railroad paint shop one of the largest and most direct specialist paint consumers of the world's painting crafts. If our statements are facts, that almost all paint stock that has been and is still so successfully used in the railroad paint shop is specialty paint, it is then but a matter of recognition to all mutual interests to permit us to state that the railroad specialist paint manufacturers have been in a long successful past, and are still essential to the railroads as manufacturing specialty, or as you please specification paint makers. When a rail-

road asks a paint making concern to put its lowest selling price on its own specified formulation for paint, it does so at its own risk, because in so ordering its paint supplies on an open market the buyer assumes all of the responsibility for quality value. On the other hand, when the railroad buys the guaranteed specialty paint of the reputable railroad paint maker at the usual fair established market value, there is no buyer's risk, as every railroad painter knows that when such manufacturer's specification paint went wrong, it was without any wrangling satisfactorily replaced in the good old days when cheap paint trickery FOR THE ALMIGHTY DOLLAR seemingly was not worth as much as it is today, when there was no idea, thought, practice or force used that would compel the railroad in self-defence to make its own paint or to furnish company specification for making the same. We also think we are safe when we say, that nine-tenths of the meritorious staples of specialty paint stock used in the roalroad shop, used in the forms of the almost perfect formulations of the surfacing system, hard elastic flat coatings, intermediate and finishing enamel coatings, the especial railroad varnish and paint reducing oils, also the many other exclusive coatings too numerous to mention, which are the capital stock in trade products of the paint making concern, who in years of special effort have devoted time, money and study in perfecting the paint that made it possible to materially cut the time for painting a coach or locomotive in half. We will further assume to say that a majority of these almost perfect paint specialties cannot be and never are safely duplicated by the on-again-off-again-busted-cheap paint sellers, who break into the railroad paint game with their just as good paint at half the price of the staple material. The more we studied this subject as a paint craftsman, the more we became convinced THAT IT IS A POSITIVE ECONOMY for a railroad paint buyer to buy his paint from the specialist maker. As a matter of business the transaction is safer, because such reliable people have a past and present business reputation to sustain, which as a rule, they will back up in an honor way, that is BEYOND PRICE, when they are asked to cut a price that would mean a material deteriorating cut in the quality of their well established high grade car shop paint. There can no one doubt or dispute the claim that the term specification paint is most synonymous with the paint demands of the railroad paint shops that are operated in conjunction with well equipped chemical laboratories. If this is a correct version of the situation, it would then in a comparative sense appear that the railroad without a chemical laboratory seemingly would be at the mercy of the frenzied competitive price cutting paint maker and seller, who is undoubtedly partially if not wholly responsible for the unsatisfactory market condition that finally compels the railroad cheap paint buyer to resort to the science of chemistry for protection.

Regardless of the protecting wings of chemistry, or the paint specification mandate, there is always material trouble in the railway paint shop that the foreman is not responsible for, when paint, cheap in both price and quality, proves a failure, its maker as a rule will set up the complaint that he is the victim of a shop discrimination or that the shop in question was either too hot, too cold or damp to insure the safe application of his better than the best ever paint, which in a fair shop try-out often proves to be absolutely worthless. Now, we do not wish to convey the idea that new paint innovations should be barred from the railroad paint shop, but we do claim that all such new designed paint stock, regardless of formulae, specification or make, should be sample tested out for both its working and service wearing qualities so as to leave no doubt of its final fitness for use in the railroad paint shop, where paint material mistakes are never remedied regardless of placing the blame. As a rule, who is it that has to stand for all material short comings, ESPECIALLY THE REAL FINAL BAD RESULTS? Is it the man who drafts the specification, the man who makes the paint, the man who sells or the man who buys? No, it is the man on the job, who cannot run away from it, and is morally held craft responsible for the work, the man behind the brush who is not lucky enough to be a chemist, rich enough to be a maker or silvery-tongued enough for a railroad paint salesman. Considering the cupidity of man in his inordinate desire for wealth and position, also as we know him commercially with the honesty or dishonesty of the profit system, is it a safe practice for a railroad paint buyer to buy quantities of paint from some new enterprising concern, WHO GETS RICH, if they have the opportunity of stinging the big paint consumers but once?

Is there a man of years in the railroad paint shop today who has not had the repeated experience of trying hard to help out on some new maker's best ever paint specialty that was sent in for test or bought on a MILLION DOLLAR ADVERTISEMENT at a price that appealed to the purchasing powers, which as received is found to be totally unfit for purpose? Also had the further experience of being instructed to use some such cheap in quality paint, if possible, which would mean, when such orders were carried out that the additional cost of the raw material admixture would run up the cost of the LOW PRICED PAINT to a point that would far exceed the first cost price of the best specification paint ever made, or the cost of the best standard makes of specialty paint, which as a rule cannot be raw materially duplicated in the railroad paint shop, regardless of the skill used in the attempt. Are the existing railroad chemical laboratories always in position or have they the full opportunity of safeguarding their respective companies' interest against the ever alert gilt edged paint maker's salesman who will fill an order for the finest called for specification or in fact any kind of paint at a lower price than the daily quoted

market price of the first class raw material, which the usual make of specification paint calls for. Let us enumerate some of the requirements that make the manufacturers' specialty or the railroads' specification paint a necessity. One of the worst abuses to counteract with paint is the physical abuse, especially as it applies to the locomotive or the steel freight car, which require an especially tough, elastic paint, something that will hold down steel corrosion, also withstand the other abuses that things made of steel seem to be heir to. It requires an especially hard elastic varnish to resist the strong sulphurous vapors and smoke of the locomotive, which will in conjunction with moisture or rainfall generate into what is known as the eating deposits of sulphuric ammonias, physically, one of nature's worst fume film destroyers of paint, also of iron, steel or wood where left unprotected. We also have the more or less acid charged lubricating greases, which in contact or vapor form are destructive to paint, which to prevent requires hard elastic coating that will prevent the deep permeation of the grease, which often has strong solvent cutting effects on paint. The claim has also been repeatedly made that it also requires an especially made paint to pit against the changeable climatic elements that environ our country's general railroad service. In arranging the economy question of railroad specification paint as a pro or con matter of debate, we do not think it was the intention of our Association's advisory committee to antagonize the skilled railroad chemist who has figured out paint specifications, but we do believe that it was the purpose of the sponsors to convey the idea that the railroad can without risk buy reasonably from the responsible manufacturers just as good paint, if not better, than they would get where demanding specification paint, which the car paint men are in position to know is not respected, especially where the paint is bought on price from the lowest bidder, who is governed by every law but that of ever giving the cheap buyer his money's worth. In order to raise the question, we will assert that there have been dozens of car paint shop cases where the received specification paint was not materially up to specification. As an illustration as to what did happen in one paint shop, we will recite a little specification paint incident, that happened in the shop practice of the undersigned several years ago, of which he still has a sad remembrance of as a time when there was an open attack on his integrity as a painter. Without mentioning firm names, the paint at issue was contracted for on a first class paint specification. At the application of its bidder a copy of a specification semi-paste metallic brown paint was submitted for price and delivery. The price of the paint was 45c per gallon f. o. b. McKees Rocks. At the time pure linseed grinding oil, which the specifications called for, was worth 75c per gallon in carload lots. The finest grade of dry metallic brown was also specified, same to be used without any (Ash) inert material which in

carload lots cost $16,000 per ton. 14** to the gallon was the prescribed weight, which embodied 9** of dry metallic and 5** of linseed oil

9** Dry Metallic Brown @ $16.00 per ton	$0.07
5** Linseed Oil @ $0.76 per gal.	.47½
Raw material cost	$0.54½

If the market quotations were correct, the raw material cost of this specification gallon of semi-paste paint was 12½c in excess of what the 45c per gallon of paint was sold at.

If these figures are also correct, what about the cheap man's profits, his overhead, package, freight and general selling costs where selling his product at 45c per gallon? Why, the whole proposition seems to be so ridiculous that it really would be a laughing matter if it were not for the fact of the undignified position it places the foreman of painters in, when called on to defend himself against such bunks paint games, which is but a further proof that it is a dangerous practice to buy a paint at its cheapest price, PAINT, which has in its nature the greatest opportunity for material adulteration and fraudulent manipulation of all things on earth bartered and sold. It has been said that it was the paint adulteration and manipulation abuses that caused the railroads to order specification paint. If this story is correct, in the name of all that is fair between man and man, what did the beat out cheap paint buyer expect to get? Was he looking for a first class paint at whitewash prices?

In conclusion we will say, that the organized principles of the Master Car and Locomotive Painters' Association has stood for the best paint stock procurable in its years of associated debate on the economy of using the best material and methods in the railroad paint shop. There have been thousands of demonstrations that have taught the lesson, that the best paint that can be bought is the cheapest in the long run. As a consequence to the craft, it does not matter whether the best paint is a reputable manufacturer's or a railroad specification paint, just so long as the purchasing company gets its money's worth. If the railroad specification paint is the best, let us have it, but not in its hazardous cheapest in price form, so that the question will never again rise in our future conventions, namely: From the standpoint of the Railroads is it Economy to purchase paint made on Railroad Specifications?

THE PRESIDENT: The next will be a paper on the same subject by Dr. M. A. McDonnell, Chemist Pennsylvania R. R. at Altoona. As Mr. Gearhart is connected with this same road, I am going to ask him to introduce Dr. McDonnell to the Convention.

MR. GEARHART: Mr. President, Ladies and Gentlemen of the Convention, it gives me great pleasure to introduce to you Dr. McDonnell, our chemist. He and I have

worked together pretty closely during the past few years, and while he hasn't made a first class chemist out of me, nor I a first class painter out of him, still we have worked together in very close accord. (Laughter.)

DR. McDONNELL: Mr. President, Mr. Vice-President and Members of the Association: It certainly is a great pleasure for me to come before you this morning. As Mr. Gearhart has indicated, I have been very closely associated with him and with some of the other members of your Association for some years past.

(Applause.)

Members of the Master Car and Locomotive Painters' Association:

Some of you may not realize how frequently it is stated that painters are a prejudiced class of men with preconceived ideas, many of which are erroneous, and of the difficulty of changing ideas once formed. I can frankly say that I have not found this to be the case, and one of the bright spots which I have to look back upon, is the spirit of cooperation and help which has been given in every instance in which our master painters have been consulted, and I really feel that I am one of you.

The question before us for discussion has to do with paint specifications. I shall consider the word "paint" in its broader sense so as to include the varnish used in coach and locomotive painting operations. It is said that there are two sides to all questions. There are evidently two sides to this one, but there should be only one. If chemists knew the best paint for each particular application, and if they could write a specification for each in such a manner that they could be complied with, and if all paint products not complying with the specifications could be rejected, there would be but one side to the question. A specification informs the purchasing agent and the manufacturers just what is wanted and affords a fair basis for competition, and there is no reason why any consumer should buy something which he does not want.

On the occasion of a recent visit to the factory of a large paint company, which has apparently organized an advertising propaganda against paint specifications, a request came in for a quotation on a large order for paint oil. The railroad sales manager said, "Now what do you suppose is wanted?" "We can make paint oil covering a wide range of merit, composition and price." "We do not know what this prospective customer wants to pay or how to deal with such inquiries." He could have said exactly the same thing, with reference to a paint inquiry which was not accompanied by a specification. It would almost seem that the main object in trying to break down paint specifications, is to avoid competition.

It is argued by some that paint specifications retard progress, by fixing standards. Such argument has little weight, for any paint consumer would change his specification if he were convinced that it could be improved upon. This point is well illustrated by the history of the Pennsylvania Railroad specifications for exterior cabin car color. Prior to 1883 English vermillion was ordered for this purpose, and no tests were made to see what was being obtained, till the condition of the cars led Dr. Dudley to investigate and he found that in many cases no sulphide of mercury was present in many of the shipments which were obtained. Furthermore, he learned that there was not enough English vermillion on the market to render it commercially available in the quantities desired. He accordingly issued a specification for scarlet lead chromate and tested all shipments to see that they did comply with the standard designated. After the specification had been in force for a number of years, there was a development in the state of the art of the manufacture of certain organic pigments, some of which had great merit, and in 1911 the company again changed the specification, this time to toluidine red, a product of unquestioned merit. In 1915, war conditions made it necessary to again change, and at this time the use of an iron oxide composition was adopted. The specifications have consistently followed the progress of development, and will continue to do so, but during all of this time, all manufacturers have had a definite basis on which to work.

One of the early paint specifications issued by the Pennsylvania Railroad, was for freight car paint, the same having now been in force since July 26, 1886. On looking over a recent catalogue of a prominent dry color manufacturer, we read as follows:

"Pennsylvania Freight Car Red. We wish to call the attention of paint grinders to the great covering capacity of this red, it being far superior to some of the reds made up of combinations of various pigments, by some of the paint manufacturers. It is less liable to settle, and works out with that fine consistency, so desirable in a paint"

To read such a statement after a thirty years' trial, is certainly gratifying, and it is well known that a number of prominent paint manufacturers comply with this specification in their standard trade iron oxide paint, furthermore, it is approved by the Russian government in their contracts.

It would not be fair to assert that all of the criticism against paint specifications is unjust. In drawing up a specification, it is important to first ascertain by experience what will meet the practical requirements of service. The composition called for should not be unnecessarily restricted. It must be a product readily available. It is also important that the purchaser can make the necessary tests, to compel compliance with the specification. To state what is desired without insisting on compliance with the requirements, is

unfair to competing manufacturers, and does not protect the consumer. There is a tendency in certain quarters to write specifications which cannot be enforced. The fact that some specifications are written without due consideration does not condemn a sound principle. It would be just as fair to condemn the practice of medicine because some quack doctor without any knowledge of medicine is allowed to practice.

It is not practicable with our present knowledge to control the purchase of all paint products on chemical test. In such cases, physical tests can be devised, which we believe will be fair to competing manufacturers, and at the same time protect the consumer. Varnish is a good example of a product which, in our opinion, cannot now be controlled chemically, yet we believe it is possible to devise a specification under which it can be purchased on a competitive basis.

To show the necessity for such tests, I should like to offer some illustrations taken from cars in actual service which were painted with the products of different manufacturers whose integrity is above suspicion.

Figure 1 shows the interior of a fifty-four compartment car No. 4579, completed May 29, 1912, which received class repairs including color on the exterior and varnish throughout, which were completed on May 21, 1913. It was photographed February 7, 1915. The car had consequently been in service one year, eight months and seventeen days, following class repairs.

Figure 2 shows the interior condition of a seventy-foot passenger car No. 1717, completed by another car builder September 1, 1908, which received class repairs, including color and varnish on exterior and interior, which were completed on February 11, 1910. It was photographed about December 1st, 1911, after one year, nine months and approximately twenty days' service, following class repairs.

Figure 3 shows the interior condition of a seventy-foot passenger car No. 1621, which was new January 20, 1910, and photographed on or about December 1st, 1911, after one year, ten months and approximately twenty days' service and before it had received any class repairs.

Figure 4 shows the exterior condition of a seventy-foot passenger car No. 1775, which was new in January, 1909, received class repairs, including exterior color and varnish which were completed on April 13, 1910. It was photographed on or about December 1st, 1911, after one year, seven and approximately one-half months' service, following class repairs.

The appearance of the cars just described is far from satisfactory, as will readily be understood by all master painters. Ignoring class repairs, one of these cars had been in service less than two years, two were less than three

years old, and the fourth car, which was the oldest, had been built only three years and three months.

Figure 5 shows what is possible in the way of durability. This car was completed in January, 1913, and photographed three years, four months and fourteen days later, before it had received any class repairs. Figure 6 shows the interior condition of the same car, and figure 7 is a but slightly reduced picture of a portion of the exterior, which will give a better idea of the manner in which this painting system withstood service conditions.

With such examples confronting our officers, it was considered necessary to more rigidly control the purchase of varnish.

It is but fair to state that this car No. 156, was painted by the baking process. The varnish was one of four selected from panel tests of a large number of baking varnishes. The preliminary tests on varnishes of this class had been elaborate, and in conducting them, three of your members, viz., Messrs. Gearhart, Heffelfinger and Shaffer, cooperated. The tests showed that many of the samples submitted by manufacturers were inapplicable. The result of these trials on baking varnish were so convincing that our General Superintendent Motive Power, Mr. J. T. Wallis, decided to have the same tests applied to other kinds of varnish. A method was accordingly worked out and put in effect January 1st, 1915, which we believe does protect, and while all varnishes are now virtually bought on specification, we are confident that the manufacturer is not limited, in the exercise of his ingenuity. The fact that a test was started on scme fifty brands of varnish this month shows that the method does not prevent competition.

The method is largely practical, the tests being made on standard sandblasted steel panels made from sheet steel which was purchased for the construction of passenger cars. Each panel is 14x30 inches in size. One side of a large number of such panels is prepared by applying a suitable surfacing system and two coats of flat Tuscan red, excepting a space 3x30 inches at one edge of the same side which is left bare. Each panel is then laid off into six sections, and each section is numbered consecutively, the figures being white, and a white stripe is applied lengthwise across the panel over the Tuscan red. The object of the white stripe is to make possible a better judgment of the color of the varnishes under test, dark varnish being objectionable. A number of such panels, estimated to be a year's requirement, are prepared at the same time and kept in stock till they are required.

The varnish samples to be tested are divided into groups, made up of the various classes which are used. It is desirable to have six samples of the same kind of varnish, for example, coach rubbing, or coach finishing, for each of the six sections, on one panel. In every case a standard

FIG. 1 — INTERIOR OF CAR NO. 4579

FIG. 2 — INTERIOR OF CAR NO. 1717

FIG. 3 – INTERIOR OF CAR NO. 1621

FIG. 4 – EXTERIOR OF CAR NO. 1775

FIG. 5 — AN EXAMPLE OF THE POSSIBILITIES OF PAINT DURABILITY

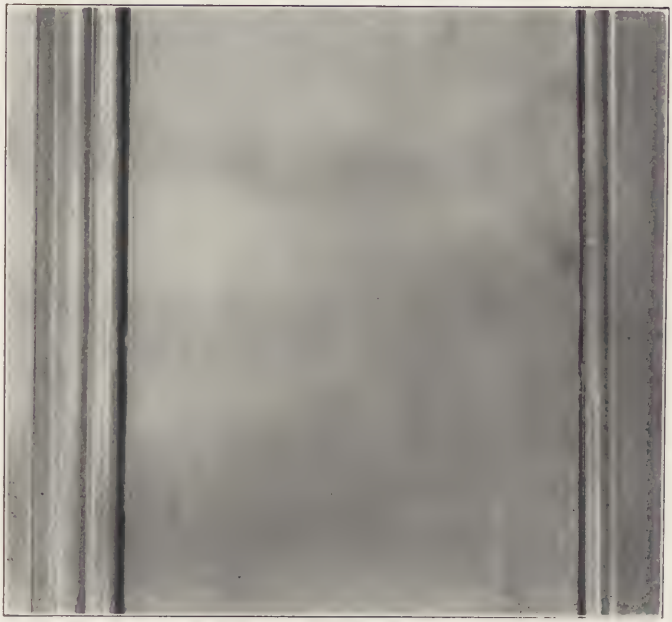

FIG. 6 — INTERIOR OF CAR SHOWN IN FIG. 5

FIG. 7—METHOD OF EXPOSING TEST SAMPLES ON THE PENNSYLVANIA

sample should be included, as the results obtained will vary more or less according to weather conditions, the test being comparative. Three coats of each sample are applied to the assigned test panel section, at intervals of forty-eight hours. After the third coat has stood for forty-eight hours a portion of each section is rubbed, excepting finishing varnish. Rubbed sections are observed for a period of twenty-four hours for "sweating out" defects. It might be said that throughout the application of the sample being tested, notes are made of any defects in color, drying properties, flow, etc. On the third day following the application of the last coat of varnish all test panels are placed in a vertical position on a rack having a southeastern exposure, and observations for checking are made at intervals of two to three days. As previously stated, it is imperative that each class of varnish under test be accompanied by a standard sample, as the time of checking will depend somewhat on weather conditions, but if this precaution is taken, the relative time of checking shown by the different brands of varnish is a fair measure of their relative durability.

In the purchase of varnish it is our practice to place requisitions for any of the brands which are on an approved list. Samples from all shipments received are tested, and if the quality is found to be below "standard" such brands are dropped from the approved list and purchase of same discontinued. New brands of varnish are also added to the approved list from time to time, after the test as outlined has shown them to be entitled to this recognition.

Figure 8 shows the test rack as it existed on September first.

Figure 9 shows a single panel on which four brands of rubbing varnish and two miscellaneous samples have been exposed for a period of 115 days. The sample of rubbing varnish on section 361 of this panel checked in 13 days. The samples on sections 363 and 364 checked in 49 days. The standard sample of rubbing varnish which is shown on section 362 did not show any indication of checking at the time the photograph was taken. This figure also shows the portion of the panel referred to, to which no surfacer was applied. It also shows the white stripe referred to, and the consecutive numbers which are white.

Figure 10 shows a panel on which six samples of finishing varnish have been exposed for a period of 143 days. A magnifying glass is not required to show the checking on some of these sections. The samples shown on section 334 checked after an exposure of only 18 days and it would be considered perished at the present time. If it had been applied to cars, practical illustrations like those shown in figures 1, 2, 3, and 4 would soon be numerous. Tests shown on sections 331, 333 and 335 are from regular shipments of approved brands from three different manufacturers. The remaining two sections show tests of varnishes not approved

but under consideration. The one section 332 checked in 64 days, and it is too soon to say as to what will be the fate of the one shown on section 336.

Figure 11 gives a closer view of two rubbing varnishes shown in figure 9, and figure 12 shows two of the finishing varnishes referred to in comments which have already been made on figure 10.

We believe it is possible to formulate and apply specifications for the various classes of paint products, including varnish, which will be a stimulus to greater effort on the part of the manufacturers, and which will reward them for creditable efforts in which they should take pride. The consumer will also reap the benefit of such improvement, and the painter will feel better satisfied with his work, especially if he has the opportunity of seeing it, after it has rendered several years' service.

It is but fair to say that your worthy Vice-President, Mr. Gearhart, co-operated with us in the plan outlined for testing varnish. Mr. Shaffer has doubtless recognized that some of the photographs shown were taken from one of his reports.

In conclusion I hope that what has been said has shown some of the value of specifications. I hope that I have also shown just cause for appreciation by the examples given of the co-operation of master painters, and if this were an opportune time I should like to refer to other instances.

MR. COPP: I move that the thanks of this Association be tendered to Dr. McDonnell for this very able address, and that he be elected an honorary member of this Association.

(Seconded by Mr. Gearhart, and carried.)

DR. McDONNELL: I thank the Association for the honor conferred upon me, and I very much appreciate it.

MR. COPP: As a member of the Association it is his duty to do what he has done in connection with the work on the Advisory Committee and his other work for the Association, without receiving any thanks for it, but I just want to say at this time that I am not unmindful of the very fine paper read by Mr. Quest, and I believe he should receive honorable mention.

MR. GIBBONS: I believe this question is a very pertinent one, and when thoroughly understood by the officers of the railroads it is certain to be of great value to all of us. Mr. Quest's paper brought out things in a manner that showed he thoroughly understood the matter, and also showed that he was not afraid to handle it without gloves. Courage of that kind always deserves commendation, and I believe it proper that we also, because he has served us long and well, and has done things for this Association that very few of us could do, give him a rising vote of thanks at this time, and I will so move.

(Seconded by Mr. Grattan, and carried.)

MR. QUEST: I thank you all for the privilege of doing my duty toward this Association, which I have tried to do for so many years that I daren't give the number or some of you will know how old I am without looking into my mouth. (Laughter.)

THE PRESIDENT: Subject No. 3 is of course scarcely debatable, but if any of you have questions to ask I am sure Dr. McDonnell will delight in answering them. If there are no questions, we will proceed to Query No. 3, of which the discussion will be opened by J. W. Grattan, of the B. R. & P. This query is, "Is there any advantage in painting or oiling the interiors of new or old steel gondola and hopper cars?"

DuBois, Pa., September 2, 1916.

Gentlemen, Officers and Members of the Master Car and Locomotive Painters' Association:

Your Advisory Committee did me the honor to request that I open the discussion of query No. 3, which reads: "Is there any advantage in painting or oiling the interior of new or old steel gondola and hopper cars?"

This is an important subject, one in which I am sure, like myself, you are all very much interested. I believe we will all agree that if a paint, oil or coating compound is available which can be applied at a reasonable cost to the interior surfaces of the sheets of steel cars used for transporting coke, coal and iron ores, and which will prevent or measurably retard the corrosion of the sheets by the sulphur contents, that it will be of great importance to our companies. Corrosion starts principally from the interior of the car, eating its way through the floor, hopper and side sheets, making necessary the shopping of the car to renew the sheets. Account the present high cost of labor and material this is a very expensive operation. Furthermore the loss of revenue resulting from withdrawing the cars from service when so badly needed is large.

On the Buffalo, Rochester & Pittsburg Railway, to arrive at the benefits which would be derived from coating the interior of the cars with oil, some time ago we arranged when cars were shopped for exterior painting or were undergoing heavy repairs to thoroughly clean and remove all scale and rust from the interior of the car by the use of the hammer and by blowing out the scale, dust and dirt with a compressed air jet. The sheets were then given a coat of oil with a paint spraying machine. The cars, after being put back in service were periodically examined and we found that the oil evaporated very quickly, resulting in very little permanent benefit. At present we are experimenting with a lot more cars, applying a coat of elastic paint with the spraying machine. We find the machine to give better results than can be had by applying the paint by hand with a brush, as the corners and crevices around the rivet heads

are better filled and all openings at the laps and seams are penetrated by the paint spray. We find this practice to have some advantage and as long as the paint or oil lasts, to retard the wasting away of the sheets. When we examine the cars which we have oiled or painted, after they have been loaded with coal, coke, iron ore, etc., we find that much of the paint has been rubbed off in service by the loading and discharging of the lading. However, the principal wear is on the broad faces of the sheets and if the cars are kept constantly in service this wearing has a polishing or scouring effect which helps to offset corrosion.

If we direct our attention to the seams, corners, laps and sheets, and around the rivet heads, which are the vital and important parts, we find that the same scouring effect is not noticeable, and that unless the coating has well protected the parts there will be a mass of rust and scale which constantly and slowly will destroy the steel, whether the car is in service or not, greatly weakening the structure and diminishing the life of the car.

I thank you for your kind attention and will be pleased to hear this subject thoroughly discussed by all the members present, also hope to hear from the gentlemen present the methods they employ whereby the conditions referred to may be improved and the life of steel cars prolonged.

JAS. GRATTAN.

MR. GIBBONS: That is a very able paper, and brings out information of value to all of us. I would like to know of Mr. Grattan the nature of the oil that was sprayed on the interiors.

MR. GRATTAN: It was crude oil.

MR. GIBBONS: There are different kinds of crude oil, for instance the Beaumont oil is very volatile and evaporates quickly; the California oils, on the other hand, have a heavy asphaltum base, and are subject to very slow evaporation. In a matter of this kind I believe it is essential for our record to know what character of oil was sprayed.

MR. GRATTAN: It was the standard fuel oil that is usually used by the railroad companies. I presume it is called Pennsylvania oil.

MR. BUCHANAN: It is Pennsylvania oil, and it is considered a heavy oil.

MR. GIBBONS: What base has it?

MR. BUCHANAN: It has a paraffine base. There are two of those oils. I think one is the Pennsylvania, and I think the other is named from another state, and both have that base.

MR. GIBBONS: If some one at the same time could make the test on an asphaltum base crude oil, I believe it would be of value to the railroad companies, and might produce good results.

MR. HIMBURG: Is the rust all removed from the interiors of the cars before that oil is sprayed?

MR. GRATTAN: We use a hammer, and take off all that we can get off.

MR. HIMBURG: Don't you think that rust will continue to come?

MR. GRATTAN: That is what we are trying to remedy.

MR. HIMBURG: We tried this method out some eighteen months ago, and we didn't think we derived any benefit from it.

MR. McLAUGHLIN, M., K. & T.: Did you ever figure what it costs per car for gondolas?

MR. GRATTAN: Twenty-eight cents for labor, and it took five gallons of oil.

MR. QUEST: Several years ago it was my privilege to do some work ordered by a committee of the Master Car Builders, of which Mr. Carson of the N. Y. C. was the Chairman. That test consisted of something like eight or ten cars, which I think were listed afterwards by me in my capacity as chairman of the Test Committee of this Association. Mr. Carson allowed us to list them. On those cars crude oil, tallow and a number of other oils were used, and the committee came to McKees Rocks and personally examined the results. I was there when the inspection was made, and the crude oil coated cars inside were far superior to those where other oils were used. I think one oil was asphaltum charged, mechanically so, but the results with the crude oil were the best. Those cars were carefully cleaned. There was one car cleaned entirely, and something like three hundred and some odd pounds of dross matter removed from the inside. Others were simply swept out. They were all done with the spraying machine according to orders. Next year I shall try to look up those records, for in connection with this question I believe they would be of interest. I move that this subject be continued, and that a committee be appointed for the purpose of further investigating the advisability of oiling off the inside of steel cars.

MR. BUCHANAN: I will second that.

MR. MILLER: Is it the intention to confine the investigation to the use of crude oil?

MR. QUEST: Several oils.

MR. MILLER: Do you want to bar paint?

MR. QUEST: I think we have all had experience enough with paint not to desire to bring it in here. I believe the oils are the only thing that are feasible. I might say that those tests we carried on were not a success as far as the results went. I believe it is a waste of time to paint a steel car on the inside. Another thing, I am positive that when you take that dross matter off of these seams, you weaken the bottom of that car to that extent.

MR. WILKINS: I do not often disagree with Mr. Quest, but I must disagree with him on this oil proposition. In 1907 we began spraying the interiors of our cars with crude oil. It might be due to the quality of the oil used that we didn't get good results, but it was only six months before we found out that the oil was not doing very much good, and that the cars we had sprayed inside were corroding as badly as those that were not sprayed. We therefore changed our practice to that of painting with a brush all the laps and joints on the inside of the car only. Instead of spraying all over, we simply coat all the laps and joints, and fill them with paint, one coat of red lead and one coat of carbon black. That has been going on for some time, and we hope for better results from that than with the oil. We cannot see any hope from the oil, so I hope this committee will not be restricted to the oil.

MR. QUEST: I should of course be perfectly satisfied to have paint considered by the committee.

MR. MILLER: Why not make it that they consider the best means for protecting the interior of a steel car?

MR. BREESE: Why not add coal tar to this list? They are making such a product now that sells for sixteen cents a gallon, and we have tried it. It is good for steel underframes, and might work very well on these interiors.

THE PRESIDENT: The Committee can take anything up it sees fit under that general head.

MR. GEARHART: As the tests the Committee on Tests have been carrying on have been completed, I believe it would be a wise plan, instead of appointing a new committee to handle these tests, to turn the whole matter over to the Test Committee.

MR. QUEST: There is no objection to that. I will incorporate that in my motion.

MR. BUCHANAN: I will renew my second.

(Motion carried.)

THE PRESIDENT: We will now have the report of the Committee on Resolutions, Mr. Copp, Chairman.

REPORT OF COMMITTEE ON RESOLUTIONS.

Whereas, by the will of Almighty God, four of our valued members have in the past year entered into their eternal rest, namely: T. J. Hutchinson, T. J. Rodabough, J. J. Toomey, T. Hopkins;

Resolved, That while we bow in submission to the Divine Will we mourn their deaths and regret their absence from our meetings and shall ever bear them in affectionate remembrance, and be it further

Resolved, That the Secretary transmit copies of this resolution to the families of the deceased.

Resolved, That the thanks of this Convention are due and are hereby extended to the Supply Men's Association for their untiring efforts to entertain and make pleasant the visit of the ladies of the convention; also to the hotel management of The Breakers for their care of the guests and the good service rendered.

Be it further, Resolved, That our thanks are due the various railroads for transportation and courtesies extended to make this Convention a success.

Respectfully submitted,

C. A. CLARK,
F. W. BOWERS,
C. E. COPP,
Chairman.

MR. WILKINS: I move the report be accepted, together with the recommendations of the Committee, and that the report be placed on record.

(Seconded by Mr. Phillips and carried.)

THE PRESIDENT: The next matter to be taken up is that of selection of next place of meeting. I will ask for the report of the Committee appointed yesterday to make recommendations as to that.

MR. BURTON: We spent a couple of hours in going over invitations from a great many cities. I believe the Association is to be congratulated upon the number and quality of the invitations we have received. We have selected from the list of cities sending invitations seven upon which we are going to ask you to vote. They are Chicago, Indianapolis, Cleveland, St. Louis, Buffalo, Baltimore and Columbus.

THE PRESIDENT: I will appoint as tellers Messrs. Cook, Buchanan and Wilkins.

At this time I desire to read a telegram just received from Mr. Brazier. It is dated East Buffalo, N. Y., September 14, 1916, addresed to H. Hengefeld, President Master Car Painters' Association, Breakers Hotel, Atlantic City, N. J., and reads as follows:

TELEGRAM.

Acknowleding your wire of the twelfth, enjoyed the pleasure I had meeting with you yesterday. Am mailing to Secretary Dane, my check for fifty dollars, to be added to your general fund, which I note is very low. I do this for the great respect I have for the Association and my grand old friends, Bailey, Cook, Butts, Dane and many others. Hope the younger members will take interest in the Association and seek further advantage. Your friend in word as well as deed.

FRED W. BRAZIER.

MR. COPP: I move that the thanks of this Association be wired immediately to Mr. Brazier for his courtesy.

(Seconded by Mr. Gearhart, and carried).

Ballot is had on convention city for 1917, resulting as follows: Total votes cast, 68, divided Chicago 36, Indianapolis 12, Buffalo 7, St. Louis 5, Cleveland 4, Baltimore 3 and New York City 1. The three highest cities, Chicago, Indianapolis, and Buffalo, are given to the Advisory Committee, from which cities choice is to be made.

THE PRESIDENT: We have a gentleman with us, an associate member of this Association, and perhaps few of you know him. I would like Mr. McFadden to come up here and be introduced to the Association. Gentlemen, it affords me much pleasure to introduce to you Mr. L. H. McFadden.

MR. McFADDEN: I certainly am glad to meet you all, and I desire to thank your President for affording me this chance to shake hands with you.

MR. BURTON: I move that we adjourn at this time to meet at 9 o'clock tomorrow morning.

(Seconded by Mr. Grattan, and carried).

FRIDAY SESSION.

The President called the convention to order at 9:20 a. m.

THE PRESIDENT: We will take up first this morning Query No. 4, "Is there anything superior to varnish remover for removing paint from the interior or exterior of a steel passenger car, labor and material cost a consideration?" The discussion of this query will be opened by Mr. G. H. Hammond.

Query No. 4—MR. HAMMOND'S PAPER.

"IS THERE ANYTHING SUPERIOR TO VARNISH REMOVER FOR REMOVING PAINT FROM THE INTERIOR OR EXTERIOR OF A STEEL PASSENGER CAR, LABOR AND MATERIAL COST A CONSIDERATION?"

Gentlemen:

Varnish remover, as it is now made, is a marvel of efficiency as compared with that of a few years ago. It was then a crude, pungent, slow-acting and expensive material.

It was a menace to the health of those who used it in confined places. Many Master Painters were prejudiced against it, believing it would cause trouble to the succeeding coats applied over where it had been used.

The remover manufacturers have been constantly striving to perfect their product and have so well succeeded that little fault can be found with the present day article, and it is considered an absolute necessity in every paint shop.

All modern varnish remover is efficient, but some is more so than others. Removers which soften varnish and paint rapidly, but evaporate slowly and do not separate or settle, are found to be the most economical and efficient.

With the use of proper appliances, such as spray machines, vacuum machines and specially constructed brushes, both hand and power, maximum efficiency is obtained. Thus equipped, plus skillful labor, the paint on the wall surfaces of the interior of a steel passenger car can be removed at a cost of fifty cents per foot of car length. 60 per cent being expended for labor and 40 per cent for material.

Taking the outside of a steel passenger car into consideration, we find that the cost to remove the paint with varnish remover is practically the same as the inside, of 50 cents per foot of car length.

The ratio of expense for labor and material is different, as it requires less labor but more material, 45 per cent goes for labor and 55 per cent for material.

This estimate applies to steel plate construction with rivets exposed.

In shops where the necessary facilities are installed, a quicker and less expensive way to remove the paint from the outside of a steel passenger car is by sand blasting. The cost is 7½ cents per foot of car length for labor.

Sand, air and wear on sanding equipment, will be approximately 2½ cents, making in all 10 cents per foot of car length, or eight dollars ($8.00) for an 80 foot car, a saving of 80 per cent of the cost of removing with varnish remover, and the condition of the surface cannot possibly be better for the new coatings after being sand blasted.

These figures will, of course, vary.

It is not practical to use the sand blast on the interior surface of a steel passenger car, owing to the confined space, great accumulation of dust and inability to blast such parts as need it without damaging parts which do not need it. Also the steel itself is of such thin construction that there is danger of buckling or even cutting through weak places. Neither should the outside of a steel passenger car constructed in imitation of wood sheathing be sand blasted, the steel is too thin to stand it, but the thick plate construction will stand many sand blastings.

In summing up, it is found that there is nothing superior to varnish remover for removing paint from the interior of steel passenger cars, also the outside of cars of steel construction imitating wood sheathing, but for the outside of cars having steel plate construction, sand blasting is far superior, costing only one-fifth as much as with the use of varnish remover.

Respectfully submitted,

GEO. H. HAMMOND, Foreman Painter,

Minneapolis, St. Paul & Sault Ste. Marie Ry. Co.

MR. GIBBONS: This paper has been excellently gotten up. I believe, however, Mr. Hammond has made one mistake. He has said that sheet steel car constructed in imitation of wood could not be sandblasted safely. We have had some experience along this line during the last nine months. We had a number of cars constructed in imitation of wood, with beaded surface, and they were flaked off badly in places, and it was necessary to remove that paint. They burned off with blow gas and varnish removers one of those cars, and the expense was so great they asked my opinion as to the advisability of sand blasting. I told them I thought it could be done without injuring the car to any extent with the regular sand we used in sandblasting. They were very skeptical, particularly the superintendent of the car department, but gave us permission to try it. The sandblast removed all the paint, put the surface in perfect condition, and even places that were badly corroded by exposure to the air were not cut through. We have done several other cars since that time, and it is giving good satisfaction. The cost was 7.1 mills per square foot, which includes the cost of air and surcharge. A beaded car of this nature will cost a little more per square foot than a steel car with a smooth surface, because it takes more time to get into the beads and remove all the paint.

MR. WILKINS: The difficulty is the steel siding on these cars constructed in imitation of wood is of very thin metal, and while the sandblasting might be all right for the first operation, we must consider what it might do in the future. Every time you sandblast that metal, you cut away a certain portion of it, and we couldn't continue that line of action indefinitely.

MR. GIBBONS: With a good surfacing system the car in all probability will run ten years without its being necessary to sandblast again, from eight to ten years, say. That question was discussed at the time, and it was conceded by those who observed the operation and reviewed the result of it that there wasn't .001 inch taken off of that sheet; it was scarcely measurable. The men who were skeptical in the first place said that car could come back three and possibly four times, and go through the same operation without injuring the steel where it was in good condition.

MR. BUTTS: I think it is possible to sandblast the surface without injury to any great extent, although it is absolutely necessary to have the proper grade of sand and the proper air pressure and an experienced operator to do it. It would be an easy matter to cut away too much surface and injure the thin sheeting. We have done some of it successfully, but it is rather a delicate task. For that reason we have done the greater part of our work with varnish remover, although it is considerably more expensive. But, with improved machinery and experience and skill in handling it, I think we shall soon resort to sandblasting the interiors as well as the exteriors.

MR. MULLENDORF: Does that mean the interior of the steel car?

MR. BUTTS: Yes.

MR. COOK: I move that it is the sense of this meeting that nothing superior to varnish remover for removing the paint on the interior has been found, and nothing superior to sandblasting on the outside of the car has been found.

(Seconded by Mr. Houser, and carried).

THE SECRETARY: I was instructed yesterday to telegraph Mr. Brazier in acknowledgment of his wire, and I made the following reply:

Hotel Breakers, Atlantic City, N. J., September 14, 1916.

F. W. Brazier, Superintendent of Rolling Stock New York Central,

Grand Terminal Station, New York.

The members of this Association received your very kind expressions and your generous donation with a great deal of appreciation, and extend to you a unanimous vote of thanks.

(Signed) A. P. DANE, Secretary.

THE PRESIDENT: The next on our program is Query No. 5, "Is there anything superior to soap for cleaning passenger equipment cars preparatory to painting and varnishing?" The discussion will be opened by Mr. William Mollendorf of the I. C. R. R.

MR. MOLLENDORF: This is a rather broad query, but I have gone into it as best I could, and will give you the conclusions arrived at.

Query No. 5—THE SUBJECT OF THIS PAPER IS IN ANSWER TO THE QUESTION: "IS THERE ANYTHING BETTER THAN SOAP AND WATER FOR CLEANING CARS?

It may be stated that both soap and water vary in quality for this purpose. "Hard" water will deposit lime by contact with soap and make a lime-soap combination very "irritating" and destructive to Varnish.

Soap in commercial form carries a caustic or potash base, both of which are the natural enemies of paint and varnish and are active solvents of them.

Washing a painted or varnished surface with a concentrated solution of lye will give an exaggerated effect on the use of commercial soaps.

Soaps will have the same effect as lye in a modified form. To be more effective than plain water, soaps must be powerful enough and used in sufficient quantity to precipitate the limes in water in order to produce softening,—

leaving a surplus of alkali strength to decompose or attack the various dirt deposits on the surface of car encountered in washing. The alkali deposits left from wash water develop and multiply in strength in drying. The deposits lead to spotting and changing of color.

It is quite impossible to expect alkali water produced by the use of soap to be entirely removed from surfaces more or less uneven to which it had been applied by the ordinary car washer.

Practically the same action takes place from the use of soap in "soft" water and by which is meant water that will not curdle in the presence of soap. So-called neutral soaps that show no free alkali are rare and entirely too expensive for car cleaning so that the field of soap and water cleaning is limited to those soaps that generally effect the skin of the operator and in like manner the skin of the varnish or paint. The strength of soap or its capacity for work depends on the proportion of caustic or potash in combination with its fats.

The action of soap and water cleaning is particularly noticeable on paint which it gradually washes away. Varnish is more resistant to this action of soap and water because of being harder but its gloss is reduced with each washing and "checking" follows rapidly in accordance with the strength of the alkali.

The absorbtion of oils from either Paint or Varnish is known as "weathering" done by the atmosphere or alkalies, or both, and in turn they produce cracking or "checking" of the surfaces. Alkalies cannot avoid accelerating this destructive action by lodging in the multiplicity of "checks" in which position the alkali remains more or less active continuously through its absorbtion of moisture from the atmosphere from time to time after drying. It will be seen that thorough rinsing after the use of soaps is highly important.

It is, therefore, evident from foremost chemical authorities, and the experience of many of the leading railways, that soap and water cleaning hastens the destruction of Paint or Varnish and that it is not true economy to clean cars in that way. It is for the reason stated that a large porportion of the leading Railway Systems do not use soap and water for cleaning cars but depend on special car cleaners manufactured for the purpose.

In the washing of cars it is important to "feed" the Varnish or Paint and not to gradually extract the life of these coatings as done by the use of soap, caustic, potash, sodas or other alkalies, all of which are "deadners" to the finish. A Car Cleaner to be economical must, therefore, be harmless to Paint or Varnish and free from alkali, otherwise, a repetition of use will hasten the car to the paint shop and make it unattractive during operation in the meantime.

The term "feeder" for Varnish means supplying it with a nourishment of its own nature which will go to prolong

its life and serve as a protector. The best Car Cleaning Compounds are based on varnish "feeder" non-alkali, non-injurious lines.

The Car Cleaners most in use are based on gums made up in the form of Emulsion. These cleaners are applied with a large hand brush and owing to their consistency remain on vertical surfaces without running off. A few minutes time is allowed for soaking" the dirt after which the surfaces are scrubbed with ordinary scrub brushes and rinsed off with water. Wiping with chamois skin brings out the polish, although this is not necessary. After this cleansing treatment varnish or painted surfaces dry without streaks common to soap cleaning and the work has the appearance of being thoroughly well done. Surfaces cleaned in the manner described have no tendency to collect dust as there is an absence of all "stickiness" and are, therefore, not subject to moisture absorbtion, as in the case of soap treatment.

From the fact that surfaces of cars are often not well rinsed after scrubbing through carelessness or other reasons, the nature of the cleaner used is highly important. Soap has a "blooming" and "dulling" effect upon varnish while "gum" cleaners do not have this action. The residue left on surfaces from alkali absorb moisture from the atmosphere as before stated, and moisture collects dust and makes more frequent cleaning necessary and incidentally more repainting and varnishing.

It may be said of a standard "gum cleaner" that when applied to a surface it enters into the numberless pores and checks of the varnish and acts more or less permanently as a filler. It is, therefore, a "feeder" and not an absorbent of paint and varnish "binders."

Soap and water baths for cars is not giving the paint or varnish on them what may be called "a fair deal" and many complaints of premature paint or varnish failures or "perishing" is due to the use of strong alkalies. The tendency of operators is to strengthen cleaning liquids to save themselves labor and not to weaken them which would require more labor on their part. Therefore, harmless gum cleaners are the natural cleaning agents to use for this work for they clean better than soap and are absolutely safe.

In the use of soap and water for car cleaning the very general use of pumice in connection with them acknowledges the inefficiency of soap. Pumice becomes the main cleaning factor and is efficient for the purpose but pumice destroys gloss and removes a thin skin of the finish with each application. It is also difficult to remove by rinsing and usually leaves the finish with a grey effect out of harmony with the color scheme of the car.

The "gum" cleaners described are those in most general use for car cleaning at terminals and also in shops preparatory to re-varnishing.

THE PRESIDENT: You will notice this query has nothing to do with terminal cleaning.

MR. BUTTS: It has been our practice to use a solution of muriatic acid for cleaning the exterior of cars preparatory to painting when they are going through the shop. We use it in connection with soap. We first saturate the car with dilute muriatic acid, and then follow up with a weak solution of soap and pumic stone, to prepare the surface for painting. We nnd the acid facilitates removing the dirt very materially, and gives a more thorough job with less labor and expense. This practice is now standard with us. The soap we use is a varnish cleaning soap, and we require only a weak solution of it, for the finish. We have used the acid without the soap, but we find by finishing up with a weak solution of soap it gives the better results.

THE PRESIDENT: Of what strength do you use the muriatic acid?

MR. BUTTS: We vary the strength according to the condition of the car. We never think of using less than three parts of water to one of acid, but eight parts of water would be nearer what we generally use. We are using an oil emulsion cleaner on all of our equipment for terminal cleaning, and some of them are not properly treated, and a large quantity of oil is left on, and that needs a stronger solution of the acid to remove it rapidly. You can get it off with the weaker acid, but it takes much longer. We gage it according to the condition of the car we have to clean.

MR. BURTON: I think this should be made plain, or our superiors might confuse it with terminal cleaning. As I understand, this would be in the hands of an experienced man who would know how to handle the acid. The terminal cleaning is the vital one with us, and I think for fear confusion might arise, we should carefully separate the points of cleaning.

THE PRESIDENT: The subject under discussion refers only to cleaning preparatory to painting and varnishing, and has nothing to do with terminal cleaning.

MR. YOUNGER: I would like to ask of Mr. Butts whether in using his muriatic acid, and then following it up with soap, he has any trouble with the subsequent coats in the varnishing.

MR. BUTTS: Yes, we do, where we have a very badly cracked car. There we have to resort to a little different process. Where the surface is smooth, we have no trouble whatever, but with a badly cracked car that has been recently cleaned with an oil emulsion cleaner, wo do have some difficulty. Our practice is not to shop a car for general painting which has been cleaned with an oil cleaner three months subsequent to the time it is put in for shopping. In that way we avoid any serious trouble.

MR. YOUNGER: We clean all our painting and varnishing surfaces in the usual way, with soap and pumice stone. I find in using some cleaners that if you do not wash the car with benzine or something of that nature, you will have crawling of the subsequent coats. I have had cars in that I suppose have been in service possibly eighteen months, and perhaps were cleaned the first time in four or five, and then three or four afterward, and so on down to the shopping period of the car, and then if we got tnat car in, and attempted to varnish it without washing it with benzine, some of the cleaners would leave a deposit on there that we never got rid of.

MR. HIMBURG: We are using an emulsion cleaner, and have no trouble. We wash our cars every sixty days between shopping periods with acid, and renovate them.

THE PRESIDENT: What do you use preparatory to shop cleaning?

MR. HIMBURG: We use an emulsion cleaner.

MR. WILKINS: What do you use for cleaning the car after it comes into the shop preparatory to painting? Do you use soap?

MR. HIMBURG: No; we use an emulsion cleaner.

MR. YOUNGER: Do you have any trouble with the following coat?

MR. HIMBURG: We have had no trouble so far. We have been using this method a little over two years.

THE PRESIDENT: It is not an oil emulsion, is it?

MR. HIMBURG: No, it is an acid emulsion.

MR. GEARHART: We use an acid emulsion cleaner for our shop cleaning before giving it class repairs, and we have had very good results. The reason we got away from the soap and lye cleaners was because we couldn't keep the men from putting lye into the soap. We suspended a number of the men, but every once in a while we would find a car burned up. I believe our new plan is a great saving to the company. If they used a neutral soap, the work was too hard, and so they would put lye in. Sometimes they bought the lye outside and put it in the soap.

MR. QUARLES: How do you produce an acid emulsion?

MR. GEARHART: We do not produce it. We buy it.

MR. QUARLES: I do not think you can have an emulsion without oil.

MR. GEARHART: I don't know whether you call it an emulsion or not. It is a cleaner about the same as an emulsion. It is about as thick as cream or maybe a little thicker.

MR. HIMBURG: In our solution we use 35 pounds of oxalic acid to 60 gallons of water, but the price of the acid is so high now that it is difficult to get it.

MR. QUEST: Did you ever try muriatic acid?

MR. HIMBURG: No, sir.

MR. KEEL: Are your men bothered with sore hands? Oxalic acid is a strong poison. I used it for terminal cleaning some years ago, and abolished its use. It would cause soreness under the fingernails, and the men would quit sooner than use it. Muriatic has the same result if used too strong. If they handle it with long handled brushes, and do not get their hands it it too much, they can use it for some time.

MR. QUEST: There is a lot of difference between oxalic and muriatic, anywhere from 75 to 80 per cent difference in the strength of it. Oxalic acid is nothing more or less than nitric acid and sugar. You can easily make your own oxalic acid by putting sugar into nitric acid until it crystallizes. After men become immune from the effects of muriatic acid, there is no trouble at all.

MR. McLAUGHLIN: I think there can be a neutralizing agent used with the oxalic acid that will prevent the soreness to the hands.

MR. COOK: The query really intimates that there is nothing superior to soap. Mr. Mullendorf's paper clearly shows that soap is the worst thing we could use. We should take some action before we leave this. We haven't arrived at a definite conclusion that there is anything superior to soap as yet.

MR. BREESE: We have been using linseed oil soap for interior and exterior cleaning until recently, when we had to go back to the muriatic acid again for the simple reason that the fats, etc, became so high that we commenced to use too much rosin and alkali, and it was impossible to rinse the car off. You could take that linseed oil soap, so called today, put it on your hands, and you couldn't rinse it off in three hours. It cannot be rinsed off without hot water, and of course we didn't have that, and we had to go back to muriatic acid.

THE PRESIDENT: You didn't go back to the muriatic acid because the linseed oil soap didn't give good results?

MR. BREESE: I would prefer the linseed oil soap when we get it right.

MR. GIBBONS: If you get good soap, handled right, there may be something as good, but I think there are few things any better. I believe it is that way with almost any kind of a cleaner, it must be mixed in the proper proportions and handled properly. Some things have been said about oxalic acid cleaners being detrimental to the men. I have an oxalic acid cleaner that is used for a special purpose, used by one of my men, and he has been using it for a long time, and he has never had anything wrong with his hands. I believe it is the same with the muriatic acid cleaner, or cleaners of any other kind—it depends on the manner in which they are mixed and used. Mr. Breese said that when he could get oil soap properly mixed and unadulterated, he got good

service from it, but if it were adulterated by adding rosin and other things, it made a gum on the surface that was impossible to remove, and he had to use something else. I believe it is the sense of this Association and that experience has taught us that a good soap cleaner is satisfactory, and while we are willing to admit there are other preparations on the market that are equally as good, there are very few as economical.

MR. BUTTS: If we are to discuss the question, is there anything superior to soap and water for cleaning varnished surface preparatory to repainting, I would want to go on record as saying that I consider muriatic acid far superior to soap and water, for this reason: it has become quite a common thing to clean cars with oil emulsions, and most roads are using them in some form. A soap solution of any kind, pure or otherwise, that is strong enough to dissolve the oil that is left on the surface will certainly injure your varnish. You can overcome that almost entirely by dissolving that oil deposit with muriatic acid, and then taking a very weak solution of soap and water and finishing up. You haven't injured your varnish a particle, and you have done it thoroughly and at much less expense than with pure soap. If we had to abandon either, we would abandon the soap, but we are using both.

MR. BREESE: Have you a price for the two operations?

MR. BUTTS: There are not necessarily two operations.

MR. BREESE: But you must go over it with the muriatic acid, and then go over it with soap.

MR. BUTTS: After we have dissolved the oil and dirt with the muriatic acid, then we take a scrub brush with a weak solution of soap and pumice stone and finish up the job.

MR. YOUNGER: But you really do have to resort to the soap to get results?

MR. BUTTS: No, sir.

MR. YOUNGER: Suppose you simply washed that surface with muriatic acid, and had no soap, how would you go on and prepare the car for painting?

MR. BUTTS: We would rinse it thoroughly with water, without using any soap. We cleaned them with just the muriatic acid for many years, and did not use soap at all, and the reason we adopted soap is that it cheapened our work to some extent. That was the principal reason. You can rinse it more thoroughly with a weak solution of soap, almost like water; you can wash off the accumulation readily and easily and much quicker, and you save considerable acid by it, and it makes a cheaper transaction. But we would clean it thoroughly and put it in good condition without using any soap.

THE PRESIDENT: The idea in using the soap is to get any excess of the acid off?

MR. BUTTS: Yes.

MR. QUEST: My experience has been that the muriatic acid is not a varnish solvent to any great extent. Our mixture of nine parts of water to two parts of the acid has usually given good satisfaction on an ordinary car.

MR. COPP: I would like to ask whether any of the members have had any experience with what is called the Wyandot product? I think it is called an alkali cleaner. I simply want to observe that in connection with all these solutions that have been mentioned here, that in connection with all of those mixtures you want to take into consideratin the fact that there must be some brains mixed in.

THE PRESIDENT: I believe it would be well, in view of the interest aroused by this discussion, to carry this subject over for another year. We might at our next convention have scome papers prepared on it.

MR. COPP: I move tnat the subject be continued for next year.

(Seconded by Mr. Breese, and carried).

THE PRESIDENT: This brings us up to the installation of officers. I will appoint Mr. Miller and Mr. Cook to act as a committee to present the incoming officers for installation.

MR. MILLER: Mr. President, it gives me great pleasure to present to you for installation Mr. Gearhart, whom the members of this Association have elected President for the ensuing term.

THE PRESIDENT: Mr. Gearhart, in turning this emblem of authority over to you, I feel it could not be placed in worthier hands. From what I know of you personally, and from what I have learned of you through various periodicals, I am satisfied you will fill the position to which you have been elected with honor to the Association and with credit to yourself (Applause).

MR. GEARHART: Mr. President, Ladies and Members of the Master Car Painters' Association: Mere words cannot express my appreciation of the honor you have conferred upon me in electing me President of this Association. I can assure you that I will give the best I have, and with the help and advice that I feel you will give me, I shall try to make the coming year a successful one for the Association. I would like at this time to say just a few words to the younger members of the Association. I would ask them as a personal favor to take part in all the business we transact. I want them to feel that they have the same rights and privileges as the older members, as it will be but a few years when they will have to take up the active work of the Association. I again thank you most sincerely (Applause).

MR. COOK: Mr. President, Ladies and Gentlemen: It gives me pleasure to present Mr. J. W Gibbons. for installation into the office of First Vice President for the ensuing year.

THE PRESIDENT: Mr. Gibbons, I feel that the Association has made no mistake in electing you to this important office. You are naturally, under all conditions and circumstances, its next President, and should by any unfortunate occurrence, which we hope will not take place, anything happen to our President, you would naturally assume his duties. We feel that in you we have a man worthy in every respect to be elected President. Your work in this Association since you joined it has been of such admirable character that you certainly deserve the thanks of this Association for it. I want to personally thank you for the assistance you have given me this year. When I asked you to again assume the chairmanship of the Test Committee, I felt I was imposing upon you, for you had made a very fine report the year before and undertaken such elaborate tests, but when you consented to take that chairmanship I felt that in you I had indeed a friend. I want to cangraulate you (Applause).

MR. GIBBONS: Mr. President, Ladies and Gentlemen: I certainly appreciate the kind remarks of our President really more than I appreciate the honor you have given me by electing me to this office. I do not want to detract from my appreciation of that office, because I know what it means, but I want to assure you all that above any honor I might receive, I appreciate the friendships and the kind words and the help that you have each and all given to me in my work. I can say to our President for the coming year that I will give to him and the Association the same support that I have tried to give in the past (Applause).

MR. MILLER: Mr. President, I present to you, and through you to the members of this Association, Mr. Younger, whom they have seen fit to elect as Second Vice-President of this Association for the ensuing year.

THE PRESIDENT: Mr. Younger, I want also to congratulate you upon your election as Second Vice-President, a stepping stone to the Presidency. By your own conduct you will prove to this Association whether you are worthy of that office. Personally, I feel sure you will perform all the duties that will devolve upon you with credit to yourself and the Association. I have always considered Brother Younger one of my boon companions, and I appreciate him very much, and I appreciate the fact that he has been elected to this office. I want to congratulate you also (Applause).

MR. YOUNGER: Mr. President, Ladies and Gentlemen: I can only repeat what I said to you Tuesday morning, when you honored me with this position, and I want you to know that I appreciate it more than I can ever tell you. I assure you that if there is anything I can do for this Association, my

best efforts and any ability I may have will be used in that direction. I thank you again (Applause).

MR. COOK: Mr. President, Ladies and Gentlemen:—(here the applause and cheering prevented Mr. Cook from proceeding for a few minutes), I present this young stranger, Mr. A. P. Dane, for installation into the office of Secretary-Treasurer for the ensuing year (Prolonged cheering).

THE PRESIDENT: Mr. Dane, if faithfulness to duty will re-elect any one, you are certainly entitled to this. During the past year you have been of inestimable assistance in making my administration a success. You have changed the indebtedness that confronted us last year into a surplus, and I know this Association appreciates the way you have performed the duties of your office. I can assure you, sir, that I congratulate you with all my heart (Applause).

MR. DANE: I cannot express myself properly here this morning. Such an ovation as I have just received would touch the pulse of even a Hughes or a Wilson. I am conscious of having done my duty as well as I could and as well as I knew how, and have tried to do all in my power for the interest of the Association. I shall certainly continue to do so, and shall endeavor to make both ends meet at the end of the year. I again thank you very much (Applause).

MR. GEARHART: The next in order is the appointment of the different committees. Before I announce these committees, I would ask as a personal favor that none of you decline. We want our work to be a success and in order that it may be so, we need the undivided efforts of every one. The committees are as follows:

Advisory Committee—John T. McCracken, Chairman, S. E. Breese, F. W. Bowers, W. A. Buchanan, M. L. Shaffer.

Test Committee—B. E. Miller, Chairman, D. C. Sherwood, E. C. Schedd, F. B. Davenport.

Information Committee — Charles E. Copp, Chairman, Charles A. Cook, E. E. Lewis, M. J. Haynes, F. W. Wright.

Entertainment Committee — Wm. Mollendorf, Chairman, George Warlick, George Swing.

Hotel Committee—D. A. Little, Chairman, George Warlick, Charles Taylor.

THE PRESIDENT: This brings us down to our closing exercises. We have with us this morning a lady who has met with us for many years. She used to be one of our entertainers at the opening or closing of the Conventions. I notice Mrs. Lynch is in the room, and if she will oblige us with one of her humorous recitations, we will certainly appreciate it (Applause).

(Mrs. Lynch recites "Mrs. Casey at the Euchre Party," receiving great applause).

MR. GEARHART: Before closing this Convention, I wish to say we have most heartily enjoyed this recitation by Mrs. Lynch, and we thank her very much for her effort. We will

stand and sing "Blest Be the Tie That Binds," led by Mrs. Little.

(Convention stands, sings above hymn, and is declared adjourned).

LETTER RECEIVED BY SECRETARY AFTER CONVENTION ADJOURNED.

New York, Sept. 16th, 1916.

Mr. Albert P. Dane, Secretary-Treasurer,
Master Car and Locomotive Painters' Assn.,
c.-o. Boston & Maine R. R.,
Reading, Mass.

My Dear Mr. Dane:

On my return to the office this morning I found your telegram of the 14th, in reply to my wire addressed to Mr. H. Hengeveld of the 14th.

I regretted, when I sent the telegram, that I did not have my check book with me, consequently I am enclosing my check as outlined in my telegram of the 14th.

The following is a correct copy of the telegram which I sent, possibly the one which you received was not worded correctly:

"H. Hengevel, President, Master Car Painters' Association,
Care of Breakers Hotel, Atlantic City, N. J.

"Your wire of the twelfth: Enjoyed the pleasure I had meeting with you yesterday. Am mailing to Secretary Dane my check for fifty dollars to be added to your general fund, which I note is very low. I do this for the great respect I have for the Association and my grand old friends, Bailey, Cook, Copp, Butts, Dane and many others. Hope the younger members will take interest in the Association and seek further advancement.

"Your Friend in word as well as deed."

I want to thank the President and officers for the very nice telegram that I received, also that I had the privilege of talking to the convention in a confidential way and straightening the matter out, which was not properly understood in my letter of two years ago, and I hope that I succeeded in making the right impression, as certainly no one has the interest of your Association more at heart and a higher regard for its good work and its members than I have. I realize, as outlined in my remarks before the Association, how little some men and some departments are recognized by certain railroads.

I enjoyed the few hours I was with you and hope that you had an enjoyable convention.

I am sending a copy of this letter to Mr. Hengeveld for his information.

With kind personal regards.

Yours truly, F. W. BRAZIER.

In Memoriam

Ex-President T. J. HUTCHINSON

Grand Trunk Ry. Died June 10, 1916

London, Ont.

T. J. RODABAUGH

P. F. W. & C. R. R. Died March, 1916

Fort Wayne, Ind.

J. J. TOOMY

Associate

Ball Chemical Co. Died Dec. 27, 1915

Pittsburg, Pa.

THORNTON HOPKINS

Associate

Beckwith-Chandler Co. Died Aug. 1, 1916

New York, N. Y.

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